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EDISON ELECTRIC INSTITUTE BULLETIN

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PUBLISHED MONTHLY BY EDISON ELECTRIC INSTITUTE

THE ELECTRIC LIGHT AND POWER INDUSTRY

Current Statistical Data Covering 100 Per Cent of Industry

December, 1945-1946

SOURCE AND DISPOSAL OF ENERGY—MONTH OF DECEMBER

	1946	1945	%
GENERATION* (Net)			
By Fuel Burning Plants	14,258,933,000	11,523,022,000	+23.7
By Water Power Plants	6,550,229,000	6,585,561,000	− 0.5
Total Generation	**20,809,162,000**	**18,108,583,000**	**+14.9**
Add—Net Imports Over International Boundaries	106,851,000	152,787,000	−30.1
Less—Company Use	142,428,000	141,126,000	+ 0.9
Less—Energy Used by Producer	357,287,000	128,793,000	.....
Net Energy for Distribution	**20,416,298,000**	**17,991,451,000**	**+13.5**
Losses and Unaccounted for	2,966,018,000	2,707,962,000	+ 9.5
Sales to Ultimate Customers	**17,450,280,000**	**15,283,489,000**	**+14.2**

CLASSIFICATION OF SALES

NUMBER OF CUSTOMERS—As of December 31st			
Residential or Domestic	29,769,107	28,116,998	+ 5.9
Rural (Distinct Rural Rates)	1,381,291	1,234,441	+11.9
Commercial or Industrial:			
Small Light and Power	4,692,850	4,398,184	+ 6.7
Large Light and Power	174,662	162,338	
Other Customers	122,381	119,112	+ 2.7
Total Ultimate Customers	**36,140,291**	**34,031,073**	**+ 6.2**
KILOWATTHOUR SALES—During Month of December			
Residential or Domestic	3,739,312,000	3,275,453,000	+14.2
Rural (Distinct Rural Rates)	302,259,000	263,802,000	+14.6
Commercial or Industrial:			
Small Light and Power	3,017,837,000	2,662,651,000	+13.3
Large Light and Power	8,831,874,000	7,561,140,000	+16.8
Street and Highway Lighting	236,296,000	222,849,000	+ 6.0
Other Public Authorities	600,162,000	539,771,000	+11.2
Railways and Railroads:			
Street and Interurban Railways	428,318,000	460,451,000	− 7.0
Electrified Steam Railroads	238,882,000	241,547,000	− 1.1
Interdepartmental	55,340,000	55,825,000	− 0.9
Total to Ultimate Customers	**17,450,280,000**	**15,283,489,000**	**+14.2**
Revenue from Ultimate Customers	**$310,910,400**	**$284,844,600**	**+ 9.2**

RESIDENTIAL OR DOMESTIC SERVICE

AVERAGE CUSTOMER DATA—for 12 months ended December 31st			
Kilowatthours per Customer	1,329	1,229	+ 8.1
Average Annual Bill	$42.79	$41.91	+ 2.1
Revenue per Kilowatthour	3.22¢	3.41¢	− 5.6

(*) By courtesy of the Federal Power Commission.

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EDISON ELECTRIC INSTITUTE BULLETIN

Volume 15 MARCH, 1947 No. 3

IMPRESSIVE PROGRAM IS ARRANGED FOR EEI CONVENTION

Accent Is on Youth and Looking Ahead

By Charles E. Oakes

President, Pennsylvania Power & Light Company, and Chairman, EEI Convention Attendance Committee

THE most impressive and potentially valuable program in the history of Edison Electric Institute Conventions has been arranged by the Program Committee for the Fifteenth Annual Convention, to be held at Atlantic City, the first week in June.

Preparations are being made for an attendance of two to three thousand representatives of the electric light and power industry, including a large number of younger executives and others marked for positions of responsibility and leadership in the industry. The Program Committee, headed by Phil H. Powers, has taken as its theme "Looking Ahead in This Industry of Ours" and constructed the program with a view to its special usefulness to younger men, at the same time keeping to the Convention objectives:

To give industry people inspiration, hope and confidence.

To inspire public confidence in our industry.

To learn new ideas on gaining employee and public knowledge of our business.

To inform our people of what's new.

To explore pitfalls, problems and potentialities of the future.

To promote free enterprise.

The Convention begins Monday morning, June 2, and continues to Thursday afternoon, June 5, with business sessions and other meetings scheduled for practically every waking moment of the period.

Business sessions will be held at the mammoth Atlantic City Convention Hall and other meetings at various Atlantic City hotels.

Division and Committee Meetings

Monday, June 2, the first day of the Convention, will be given over entirely to a group of open meetings sponsored by the Executive General Committees of the Accounting, the Commercial and Engineering Divisions, and the Industrial Relations, Insurance, Rate Research and Statistical Committees.

All will have programs of general interest. Convention delegates and guests are invited to attend as many as the time schedule will permit. Further details of these specialized meetings will be published in a later issue.

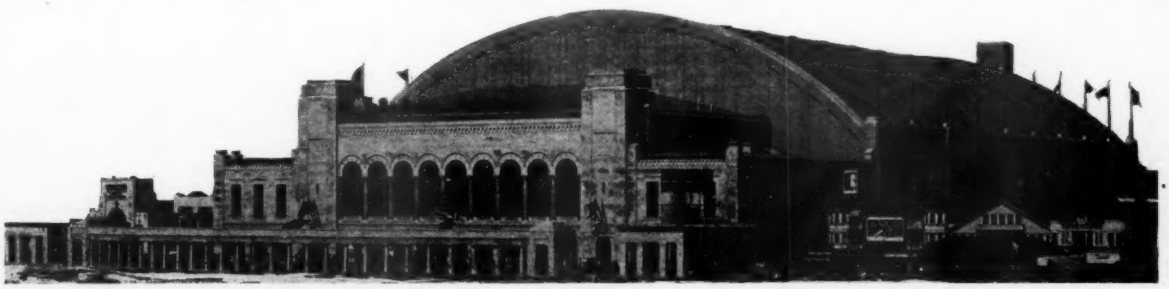
General Sessions

General business sessions at which broader matters of policy, managerial responsibility and future development are to be discussed, will be held in the morning and afternoon of both Tuesday, June 3 and Wednesday, June 4, and the morning of Thursday, June 5. A high point of the Convention will be its closing meeting, a luncheon on Thursday at which General Wade Hayes, president of Edmundson's Electricity Corporation, London, has been asked to speak on the "Pitfalls in the British System." General Hayes is expected to discuss what the electric supply industry is up against in England, how the situation developed, and what we can learn from their experience.

Subjects on the Program

Industrial relations and personnel practices, free enterprise and the American way of life, various aspects of public relations, including the public's attitude and the methods of gaining public support for business-managed utilities have a prominent place in the General Sessions, with approximately one-third of the entire program to be devoted to these subjects.

Of prime importance on the program is the future of the electric industry in its relation to the national economy. Other subjects to be discussed are the sales of its services, electric rates, atomic



energy, new technical and engineering developments such as gasification of coal, the heat pump, gas turbines, aerial cable, etc.

Still other subjects to be extensively covered are commercial opportunities, construction costs and implications, relocation of industry, opportunities for young men in the industry and what it takes to become leaders in it.

The entire Tuesday afternoon session is aimed directly at junior executives and others on the way to leadership in the industry. These subjects and speakers should make the session an outstanding event of the Convention:

"There Is a Future"—Gwilym Price.

"If Only We Had Faith"—Elmer L. Lindseth.

"What It Takes to Make Leaders" —Frank Pierce.

"Youth Must Be Served" — Reddy Kilowatt.

Speakers

Speakers on the program include:

HON. JOSEPH ALTMAN, *Mayor* of Atlantic City

DR. ADAM S. BENNION, *Vice-President,* Utah Power & Light Company

RALPH CHAPLIN, *Authority* on Labor Relations

EDWARD R. DUNNING, *Vice-President,* N. W. Ayer & Son, Inc.

M. H. FRANK, *Vice-President,* Wisconsin Power & Light Company

GEORGE M. GADSBY, *President,* Utah Power & Light Company

VIRGIL JORDAN, *President,* National Industrial Conference Board

ELMER L. LINDSETH, *President,* The Cleveland Electric Illuminating Co.

GROVER C. NEFF, *President,* Edison Electric Institute

JOHN C. PARKER, *Vice-President,* Consolidated Edison Co. of N. Y., Inc.

J. W. PARKER, *President,* The Detroit Edison Company

THOMAS I. PARKINSON, *President,* The Equitable Life Assurance Society of the United States

R. S. PEARE, *Vice-President,* General Electric Company

FRANK PIERCE, *President,* Dearborn Motor Company, Detroit, Mich.

GWILYM PRICE, *President,* Westinghouse Electric Corporation

H. F. RECH, *Director,* General Motors Corporation Power Section

DR. CLAUDE ROBINSON, *President,* Opinion Research Corporation

WILLIAM RYAN, *Asst. Engineering Manager,* Stone & Webster Engineering Corporation

H. M. SAWYER, *Chairman,* EEI Prize Awards Committee

RALPH P. WAGNER, *Chairman,* EEI Commercial Division General Committee

GENERAL WADE H. HAYES, *President,* Edmundson's Electricity Corp., London

The detailed day-by-day program for the General Sessions appears on the next two pages.

Special Events

A bright feature of the Convention will be a special concert at the Atlantic City Auditorium Wednesday evening by Phil Spitalny's noted all-girl (all 50 of them in person) Hour of Charm orchestra, conducted by Mr. Spitalny.

The first of a number of parties to be given during Convention week will be an informal, get-acquainted buffet dinner and in honor of President and Mrs. Neff, with the wives of the Board of Directors as hostesses for the occasion. This will be held Monday evening at seven, sharp. (Orchestra and dancing, but no black ties, no tails, please.)

On Tuesday evening, Westinghouse Electric Corporation will compliment those attending the Convention with a cocktail party, 4:30 to 7:00. On Wednesday evening, same time, General Electric will do the honors, likewise with cocktails.

Special courtesies for the ladies attending the Convention will be a luncheon at the Claridge on Tuesday with Bendix Home Appliances, Inc., as host, and a luncheon at the Chalfonte-Haddon Hall on Wednesday to be given by Sylvania Electric Products.

Convention Daily—Special Trains

A Convention Daily, to be published by the *Electrical World,* will list all registrations at the Convention, carry the daily programs, calendar of social functions and official notices, and also report the Business Sessions and carry general Convention news.

The New York Central Railroad has informed the Institute that a special train for the accommodation of those attending the Convention will run from Atlantic City to New York on Thursday afternoon, June 5, giving ample time for delegates to attend the luncheon meeting.

Phil Spitalny's Hour of Charm Girls — See Them and Hear Them at the EEI Convention.

PROGRAM

FIFTEENTH ANNUAL CONVENTION

EDISON ELECTRIC INSTITUTE

Atlantic City Convention Hall, Atlantic City, N. J.
June 2-5

MONDAY, JUNE 2ND

Morning and Afternoon

Open Meetings under the direction of Division and Committee Chairmen. Time and Places to be Announced

ACCOUNTING DIVISION, GENERAL COMMITTEE,
H. P. TAYLOR, *Presiding*

COMMERCIAL DIVISION, GENERAL COMMITTEE,
RALPH P. WAGNER, *Presiding*

ENGINEERING DIVISION, GENERAL COMMITTEE,
P. H. CHASE, *Presiding*

INDUSTRIAL RELATIONS COMMITTEE,
H. K. BRECKENRIDGE, *Presiding*

INSURANCE COMMITTEE.....J. H. NICKELL, *Presiding*

RATE RESEARCH COMMITTEE....E. N. STRAIT, *Presiding*

STATISTICAL COMMITTEE....WINSOR MARTIN, *Presiding*

Evening

Informal get-acquainted buffet dinner in honor of President and Mrs. Neff. Orchestra and dancing.

TUESDAY, JUNE 3RD

Morning

"Welcome to Atlantic City"
HON. JOSEPH ALTMAN, Mayor of Atlantic City

"The Electric Industry and the Institute—The President's Report"
GROVER C. NEFF, President, Edison Electric Institute

"Labor and Management—One Team—One Furrow"
RALPH CHAPLIN, Authority on Labor Relations
The need to inform our employees about our business and get them on the team with management and free enterprise. Mr. Chaplin's convictions on labor-management relations are derived from nearly fifty years of varied experience as labor-editor, speaker and organizer.

"The Public Attitude Today"
DR. CLAUDE ROBINSON, President, Opinion Research Corporation
The findings from the latest public attitude poll made under the sponsorship of the national advertising group—and the implications.

"What To Do About It"
EDWARD R. DUNNING, Vice-President, N. W. Ayer & Son, Inc.
Steps the industry should take, nationally and locally, to make further gains in public understanding and public support against politically-managed power.

"A Message from Thomas Alva Edison"—A Feature Presentation

Afternoon

"Youth Must Be Served"—A Feature Presentation
REDDY KILOWATT

"The Utility Industry Has a Future"
GWILYM PRICE, President, Westinghouse Electric Corporation
Mr. Price will point to the valuable position occupied by the utility industry in the national economy as seen from the viewpoint of a former banker who has become the president of one of the largest electrical manufacturing companies.

"If Only We Had Faith"
ELMER L. LINDSETH, President, The Cleveland Electric Illuminating Co.
A look at the future for the industry with some pertinent questions. Are the methods employed for recruiting, selecting and training candidates for executive jobs adequate? Are incentives in compensation and industry recognition sufficient to attract enough young men of outstanding ability for realization of opportunities ahead for the industry?

"What Makes Leadership"
FRANK PIERCE, President, Dearborn Motor Co., Detroit, Mich.
A challenging talk aimed at the younger executives, telling them straight from the shoulder what it takes to become leaders in our industry.

WEDNESDAY, JUNE 4TH

Morning

Election of Directors

Prize Awards Report

H. M. SAWYER, Chairman, EEI Prize Awards Committee

World Power Conference Announcement

DR. JOHN C. PARKER, Vice-President, Consolidated Edison Company of N. Y., Inc.

"Security Within Industry"

DR. ADAM S. BENNION, Vice-President, Utah Power & Light Company

Doctor Bennion will bring us up to date on the latest needs and practices relating to job studies, pensions, safety training within industry, group insurance, etc.

"Let's Tell America"

R. S. PEARE, Vice-President, General Electric Company

The importance of selling the American public on the American way of life and what each of us should do to bolster the free enterprise system.

"We Have Something to Sell"

RALPH P. WAGNER, Chairman, EEI Commercial Division General Committee

The problem of expanding our markets and meeting competition will be developed by a series of quick presentations.

Afternoon

"Utility Company Organization for Handling Personnel Relations"

M. H. FRANK, Vice-President, Wisconsin Power & Light Company

A report on the findings of a special committee appointed to study the subject.

"An Engineering News Report"

J. W. PARKER, President, The Detroit Edison Company

Latest engineering and technical developments and their implications. Gasification of coal, high-voltage transmission, gas turbines, heat pump, aerial cable, etc.

"Trends in Construction Costs and Implications"

WILLIAM RYAN, Asst. Engineering Mgr., Stone & Webster Engineering Corp.

The effect of high costs on the future ability of the industry to realize fair earnings—the longhaul outlook on the financial problems of the industry.

"What Makes Free Enterprise Keep Ticking"

DR. VIRGIL JORDAN, President, National Industrial Conference Board

A broad-gauge informative and inspirational talk, by a recognized authority, pointing up to what must be done to avoid a collapse of the free enterprise system. A plug for the profit motive.

Evening

"Charles A. Coffin Award Presentation"

"Phil Spitalny's All-Girl Orchestra"

MR. SPITALNY Conducting

A special program for the EEI Convention by the famous Hour-of-Charm Group, sponsored by America's business-managed, tax-paying Electric Light and Power Companies, and heard over the CBS Network on Sunday at the Electric Hour.

THURSDAY, JUNE 5TH

Morning

"Factors Affecting Relocation of Industry"

H. F. RECH, Director General Motors Corporation, Power Section

A report on an extensive study and analysis of why and how industries select locations for new and branch plants; the part the utility can and should play.

"Rates—A Challenge"

GEORGE M. GADSBY, President, Utah Power & Light Co.

What are the chances of maintaining present rate levels or making further reductions? How can the industry find ways to reduce distribution and customer costs? How possible is it to really simplify rates and operating procedures?

"A Look at Your Broadened Responsibilities"

THOMAS I. PARKINSON, President, The Equitable Life Assurance Society of the U. S.

As common stock of electric utilities goes more widely into the hands of the public, managements' responsibilities broaden. There are opportunities in this new investor relationship to cultivate better public and political understanding. A challenging talk on how these opportunities can best be realized.

"Atomic Energy"

(Speaker to be announced)

An up-to-date appraisal of the latest developments in application of atomic energy to production of electricity or other power, with discussion on the implications to those industries most affected.

Luncheon Meeting (Traymore Hotel)

"Pitfalls in the British System"

GENERAL WADE H. HAYES, President, Edmundson's Electricity Corp., London

What the electric supply industry is up against in England; how the situation developed; and what we can learn from British experience.

Thomas A. Edison: Prototype for American Enterprise

By Frank M. Tait

Chairman of the Board, The Dayton Power and Light Company, Dayton, Ohio

Eulogy delivered at the Thomas A. Edison Centennial Luncheon, sponsored by the Electrical and Gas Association of New York, Inc., Feb. 10, 1947

IT is obvious why we, of the electric and gas industries, should pay tribute to the man whom we honor today, but, has it ever occurred to you that, if we were identified with the mining industry, or if we were railroaders, or in radio, or the motion picture business, to name but a few of perhaps more than a dozen important fields of enterprise, it would be just as fitting, and fully as proper, that we gather today to pay homage to the man whose enterprising genius created the electric age.

We, in America, are justly proud of the many qualities and characteristics of Americans which have lifted our country to pre-eminence among the family of nations.

We like to draw inspiration and strength from the ideals and accomplishments of persons who have made sound and substantial contributions to the America of today.

And it is a healthy trait, this habit of ours, because a nation's future cannot but be an extension of its past.

An honest scrutiny of the past shows that competitive enterprise has made America the great nation we are today—great in peace and strong in war.

Competitive enterprise is inseparable from our American way of life, for it is the very fibre of freedom and of opportunity. Opportunity means enhanced value.

Competition in Electric Power

Perhaps, today, I can take no better example of the growth of values under the competitive system than the electric light and power industry. I feel free to speak concerning this industry, since practically all of my working life has been spent within it, and also many of you here, are part of it, or have interests which border those of the electric light and power industry.

Edison's invention of the first practicable incandescent electric lamp has captured the public's fancy as a symbol of his industry. Actually, it was the merest beginning, and but a small part of Edison's work in this field. Of his 1097 patented inventions (by far the greatest number ever issued to any one individual), more than 360 dealt with electric lighting and power distribution.

His creations in this field include everything from giant dynamos to conduits, insulators, control boxes, switches, sockets, meters and fuses. In short, he invented an entire generating and distributing system, which, today still bears a striking resemblance to Edison's methods and devices.

The fact that his ideas have endured, is testimony to his extraordinary abilities and foresightedness, for this industry has never lacked progressiveness; has always known an imaginative "urge"; has never feared to expand, develop and to change.

Edison's Gift to America

Now, let us consider that incandescent lamp of 1879. Here is the fertile seed of an enterprise, which, in the United States alone, measured in cold, hard figures shows a total capitalization involved of more than 16 billions of dollars.

Labor might measure this situation in terms of gross annual payroll—which in the United States alone, exceeds 550 millions of dollars. Its employees number better than 250,000.

These are *two* ways to measure the electric light and power industry. I, personally, prefer to measure it in a *third* way, in terms of comfort and well being for America's 140 million people, in the production, distribution and use of the good things of life and in dignity of living.

When Thomas Edison opened the Pearl Street Station, here, in New York City, in September, 1882, the cost of electricity was 24 cents a kwhr. At the present time (the Centennial Year of Edison's birth) household electricity in the United States sells at an average of 3 1/3 cents a kwhr.

These facts and figures help one to gain a concept of the greatness and importance of this enterprise which grew from that feeble gleam, within a globe of glass, in Thomas Edison's laboratory.

This progress was no haphazard accident, it was achieved by thinking, and working, and by turning back profits into businesses in a continued and still continuing program to create more service for more people.

Service for the World

As I move about the streets of New York, I have noticed one particularly fine poster on large billboards. They were installed in recognition of the Thomas A. Edison Centennial and bear the signature of The Consolidated Edison Company. Beside a portrait of Mr. Edison is the text, "SERVICE FOR THE WORLD." That is no idle boast, the glow in Mr. Edison's lamp of 1879 *has lighted the way to service for the world.*

The name of your association indicates, and I know, that there are men from the gas industry here today. Edison's electric lamp was born under the light from gas jets and I recall that many of the early gas men's stomachs turned somewhat "queasy" when the name Edison was mentioned. Yet the inventor *himself* back in those days foretold and prophesied a broad and continuing expansion of the markets for gas. Being a participant myself in the gas industry, during most of my business life, I have witnessed this expansion. All of us know that Edison's work immeasurably contributed to it.

It was my good fortune, both as a

youth and in later years, to know and work and consult with Thomas Edison.

I am sure his influence on me, as a young man, had a great deal to do with whatever capacity I may have developed to do things. Because I was thrilled to be associated with him, diligently worked with him and intently observed all I could. I shall never forget his great facility for concentration on any work and problems in hand.

He persistently and continuously pushed ahead for successful conclusions, regardless of time and distractions.

I am certain I must have inherited from my contacts with him, my insatiable desire *always* to learn "what makes things tick," always to question whether or not there may be better and more efficient ways for doing the mental and physical work necessary to our various businesses.

People have asked me whether it is true that Edison worked as hard and as long as his biographers say he did.

As a youth, still in my teens, I became his helper, when he was called in by a manufacturer of pig iron in my old home town of Catasauqua, Pa., to determine whether he could devise a method for producing pig iron when using anthracite coal. The year was 1893, so that would fix Edison's age at 46, and, while at the time, I was very much younger, despite the great disparity in our ages, his tremendous energy and relentless driving power literally "wore me down."

Keeping Pace with Edison

However, at the close of each Friday work day, when Mr. Edison left for West Orange, N. J., I would promptly go to bed and sleep through until I had acquired sufficient rest and had properly restored my nervous energy. This withdrawal to recreate myself was absolutely essential, so that I might again be fit to tackle the business of keeping pace with the man when he returned, on Tuesdays, to further carry forward the work and problems in hand.

Despite the many honors that came to him during his lifetime, Edison always remained essentially a plain individual; untouched by vanity or pomp. I never cease to smile in recalling, for instance, how Edison went back and forth to his work, daily, in an old time "Model T" Ford motor car, familiarly known as a "tin lizzie." His driver, at times, during the heavy winter weather, seemed to have a penchant for becoming stuck in snow drifts and, on various occasions, enroute to the station to catch my morning train to New York, I saw Mr. Edison assisting the driver to disengage his "Model T" motor car from a snow bank. At least on one occasion, when all efforts had failed to free the "Model T," Edison finally was persuaded to allow me to motor him the short distance to his West Orange laboratory.

I asked him once, why he clung to his motor car, without side curtains and offering so little in the way of protection from wind, cold and rain, when obviously, he could have used a more comfortable enclosed car. His reply was that he wanted transportation; not fine appearance.

In preparing my remarks for you today, it pleased me more than I can tell you to go back in my memory for these recollections of a much beloved Old Man, who means so much to all civilization.

If Edison were still here today, and could comment on our scenes of confusion, industrial strife, and general bewilderment, he might have said in pretty much the same words I read in a cartoon that had wide circulation in a recent issue of the *New York World-Telegram,* which read, "There is nothing wrong with this country that going back to work wouldn't cure."

I have given you the figures of the present-day capitalization of the electric light and power industry, and pointed out that this represents but a partial measure of the present-day development which Edison pioneered.

I doubt whether even an approximate accounting, in dollar value, could be made to show the true magnitude of the public's equity in all of the work of Thomas A. Edison.

You will find Edison every day, everywhere—

You turn on a switch and he lights your room.

Pick up a telephone and an Edison invention, the "carbon" telephone transmitter, is ready to work for you.

He brings you your radio programs.

He is back of your phonograph.

He is there in every moving picture theater.

He is in your typewriter—the waxed paper for your sandwiches —the gummed tape that seals your packages.

Every minute of your day, he is with you: making your world more convenient and more interesting.

YES. HE IS JUST ABOUT EVERYWHERE..

Edison made this world a better one for us to live in, and, in so doing, he created millions of jobs. These millions of jobs beget still more and more jobs as time ticks on.

Edison's invention of the motion picture camera, in 1889, created an entire new industry; one never envisioned prior to his work.

At first, hardly more than a toy, the motion picture was not only conceived in Edison's mind, but nurtured the infant enterprise well along the road to maturity. He built the first motion picture studio and produced the first pictures. (This original studio is kept at the Edison Laboratory in West Orange, New Jersey, where it is one of the interesting Edisonia relics of the past.)

The Edison-produced "Great Train Robbery," for example was the first motion picture to employ the use of a "plot." It was an important milestone in industry's pathway of progress.

Today, the motion picture industry, expanded and broadened by men who picked up and carried on Edison's work, is an important part of our national framework, for, in addition to providing entertainment for millions, it is used extensively in education and in industrial training.

Profits from Edison's Genius

To give you some ideas of what has grown from Edison's invention, the motion picture industry now has a capital valuation of approximately 2¾ billions of dollars; employs better than 205,000 persons; pays these persons annual wages and salaries exceeding 450 millions of dollars, and, in 1946, did a gross yearly business of close to 2½ billions of dollars.

The phonograph, incidentally, furnished Edison with the inspiration to invent the motion picture, in order "to do for the eye, what the phonograph does for the ear."

The close association of the two, in Edison's mind, is shown by the fact that he combined both in his motion picture, making the first projected motion picture a *"talkie."*

In 1877, Edison had his mechanics build a crude little instrument, which worked the first time it was tried, by capturing the sound of the human voice.

(*Continued on page* 86)

The Fundamental Issue— Free Enterprise vs. Collectivism

By A. E. Grauer, B.A., Ph.D.
President of the British Columbia Electric Railway Company Limited

An address delivered at the Sixtieth Annual Meeting of the Vancouver Board of Trade, Hotel Vancouver, January 28, 1947

FACING business, and indeed society, today, is the fundamental issue of free enterprise vs. collectivism. By collectivism I mean socialism and communism. I realize that these two have important differences, to which I shall shortly refer, but they have this fundamental in common—that they would put total economic as well as political power into the hands of the state, and are thus at the opposite pole of free enterprise.

The system that has brought us to where we are is democratic free enterprise. That system is very jealous of the rights of the individual, which are protected by law and by the no lesser weight of social custom. It is a system which rests on the private ownership of property and believes that individual enterprise is the best economic motivation for both the individual and the social good; the whole being regulated as to the rules of the game, so to speak, by the state. This system rests upon the practice of, and belief in, political democracy, which means that the government is elected by the citizens, is responsible to them, and must periodically return to the electorate to gain a fresh mandate from the people, or to give way to those in whom the citizens, by secret ballot, indicate that they have greater confidence.

On the other side, we have put before us these days, collectivism. The socialists and communists advance an entirely different system of political and economic organization under which all economic power, as well as political power, would in the last analysis be in the hands of the state, which means in the hands of those who control the state. This fundamental of their position raises several questions which I shall deal with shortly.

Before doing that, however, I should like to note some of the important respects in which the socialists and communists differ. These differences are chiefly in means rather than ends:

1. The socialists advocate reaching socialism by the democratic means of the ballot, whereas the communists are prepared to do so by revolutionary means.
2. Socialists state that they will compensate the present private owners of property, whereas the communists generally advocate expropriation without compensation.
3. Socialists believe that they can achieve socialism with democratic safeguards, whereas the communists bluntly state that the transitional period would require a dictatorship.

Both the socialists and communists dwell upon the short-comings of the free enterprise system and, by implication at least, take the position that these shortcomings would not exist under their own system. In short, they preach, directly or indirectly, a gospel of perfection. This is one of their great strengths because, although philosophers know that there is no greater illusion than that any system run by human beings can be perfect, it is nevertheless a great rallying cry for all those who are in any way discontented with their present lot.

Not Jesus Christ, nor any of the world's great religious leaders, has preached moral perfection on this earth. They knew human beings, and that perfection was reserved for Heaven. The turgid pages of history have amply proven the wisdom of this doctrine. Yet today, despite the proven moral frailty of man, we have many collectivists preaching, and many people believing, that they can have an economic and political heaven on earth. The danger is that, should this preaching triumph, we may, as a result, all be plunged into an economic and political Hell.

In seeking some lead from history on this fundamental issue, it can be stated without qualification that there has been no more persistent and difficult struggle throughout history than the struggle to establish and maintain the rights and liberties of the individual. There have been long periods in history running into centuries on occasion, and extending close to modern times, when the individual as such had little or no protection. People readily become accustomed to rights and privileges to the point of taking them for granted, but history shows many times that a given society would establish a measure of individual rights and liberties, only to have them swept away by dictatorial developments inevitably bound up with the increased or absolute power of the state.

We can make no easy assumption today, as so many of us tend to do, that because the system that has become commonly known as democratic free enterprise has for some time enjoyed the greatest measure of individual freedom that any peoples have during the course of history, this condition will automatically continue even under collectivist forms of economic and political organization.

A second point which seems to me to stand out throughout history is the tremendous power of human ego or human vanity, and the surprising prevalence of individual lust for power. The pages of history are sprinkled with the almost unbelievable accomplishments of unbalanced individuals with a terrific lust for power. The modern social science of psychology backs up clinically what history so pathetically records, namely, that among the classifications of human abnormality, a large one is made up of those who are driven by a lust for power.

I myself can remember when there was the general complacent assumption that the days of the great power-mad dictators was over. Napoleon was in the past! . . . Our own contemporary times have given terrible proof, in the

shape of our Mussolinis and our Hitlers, of what any psychologist could tell you, namely, that this type of individual is with us always.

Furthermore, aside from abnormal types, history gives ample proof of the fact that human nature has not withstood the temptations of such a concentration of power as are provided by socialist and communist set-ups. Lord Acton's oft quoted epigram has lost none of its essential validity, "All power corrupts, and absolute power corrupts absolutely."

I believe that the history of the last 20 years has given convincing proof of the fact that dictatorship is a worse threat in our times than it ever was before. Several facts bring about this result. The person who can dictatorially control the state these days is practically immune to overthrow from within. He has complete control of the army and police force, and such sweeping control as was not even dreamed of in previous times. The machine gun, the tank, the hand grenade, the howitzer, the airplane, and now, God help us! the atomic bomb, have put power into the hands of a dictator which makes the organization of a successful revolution practically impossible.

To back it up, our modern system of roads and transportation generally, and communication through radio and wireless, have eliminated distance. The successful rebellions against dictatorships in the past had none of these things to contend with. On top of it all, the dictator has complete control of the press, the radio, and the educational system, so that he had power over his nation to an extent that simply was not possible in any age but our own.

Again, we have living proof of how these things work out. Hitler was only overthrown from without, and after a most desperate struggle. Soviet Russia has been in existence for almost 30 years under an iron-clad dictatorship. This dictatorship started out as a "dictatorship of the proletariat," which was supposed to be a transitional dictatorship which would usher the people of Russia into the felicitous new democratic world of communism which was to be the first working example of Heaven on earth. Whatever else might be said of Soviet Russia, it cannot be said that its especial variation of historical dictatorship has, after a trial of three decades, developed any tendencies either toward democratic processes or toward the protection of the rights of the individual by the rule of law.

Modern history dramatically points to the fact that the nation that is to maintain the rights and liberties of the individual must guard and cherish them more keenly than ever before. Yet the collectivists would lightly sweep them all away in a mammoth state organization of concentrated power.

After all, we do not want to end up in the dilemma of the peoples under General Narvaez, a Spanish dictator of the last century. On his death-bed the priest asked him, "Does your Excellency forgive your enemies?" The dying dictator replied in a firm voice, "I have no enemies; I have shot them all."

Democratic free enterprise recognizes that political government is in the last analysis a matter of compromise. The various points of view within a democratic state not only affect the government through political parties but through various economic or functional organizations, such as trade unions, farmers' associations and Boards of Trade. This is an excellent way to arrive at working policy on matters affecting all citizens, such as education and health, but it is not a good atmosphere in which to conduct business.

The political set-up of democratic free enterprise never intended that business should be conducted by government. Political pressures on business, when it is conducted by the state, are inevitable.

I repeat—the atmosphere of the democratic political system, namely, of adjustments between various points of view and between various groups, is not and was not intended to be the atmosphere for business efficiency, admirable as it is for the compromises necessary for the government of human beings along the lines of social policy.

We have to ask ourselves, therefore, in assessing this fundamental problem that faces us of free enterprise vs. collectivism, whether the steps which the collectivists put forward as immediate objectives, which are the public ownership of certain industries, are in fact in the public interest or whether they are not steps which, if taken, will lead us toward the breakdown of the system which has brought us where we are, and into a collectivist type of government in business which so far has been more conspicuous by promise than by performance.

One of the arguments that has caused even some free enterprise people to be complacent about the socialization of certain industries is the claim that they are monopolies and should therefore be run by the state. Like the misguided young lady who sought to defend herself by saying that she was just "a little bit pregnant," some misguided businessmen think that "a little bit" of socialism is all right—provided it is not their own industry.

It is admitted that in many lines, monopolies are the most efficient type of business organization, but it is felt by some that they might get too much power.

I have never seen the force of this argument because, at its best, it means trading one monopoly for another with far worse possibilities. There is never any recourse against the state, as the trade unions in Russia and Germany found out. And if the state wants to raise prices or rates, there is never a public hearing.

The safeguard for citizens against undue monopolistic power under democratic free enterprise is not public ownership, which opens up the dangers that I have indicated, but public regulation. The business is left in private hands, which keeps it out of the area of political pressures and compromises, but is subject to the regulation of an independent commission set up under statute by the Legislature.

In this way the citizens get protection against possible abuses of monopolistic power and they also get the business efficiency of private enterprise. This is the system that obtains, for instance, with respect to public utilities in every one of the 48 American States and in British Columbia.

Despite what advocates of socialization say, therefore, the issue is not between private monopoly on the one hand and government ownership; it is between publicly regulated private monopolies on the one hand and all-powerful state monopolies on the other.

I should like finally to turn to another problem which is raised by the fundamental issue about which I am talking.

Democratic free enterprise in its beginning assumed unanimity on the part of all groups regarding the political and economic system as such. Certain practices were therefore laid down in law and custom which simply do not fit the period that we are now in, where the minority political parties of socialism and communism question our whole po-

litical and economic form of organization.

An outstanding example of this type of problem is taxation. When the system of democratic free enterprise was in its developmental state, there were *no* collectivist parties. The political issues were between the Liberals and the Conservatives, both of which believed in democratic free enterprise.

Consequently, when it came to publicly owned properties, there was no question of these properties being taxed. Public ownership was for purposes of general good, such as education, and there was no point in taxing such properties. No party thought of the public ownership of business.

However, our times have seen the rise of political parties like socialism which advocate a series of steps by which government would take over first one type of business and then another and, for various reasons, democratic governments have gone into the business field to some extent.

Under these conditions, the practice of not taxing publicly-owned enterprises becomes a farce. The greater the area of non-taxed public ownership, the heavier is the burden thrown upon remaining businesses and the harder it is for them and for the whole system of free enterprise to carry on.

We have had the almost incredible fact that free enterprise governments, without intending to do so and just by drifting into it, have been giving a heavy bonus to socialization by exempting any business owned by government from taxation.

If you are a believer in democratic free enterprise, the cure for this amazing situation is not the socialization of more and more industry so that finally no business pays taxation; it is that all business enterprise, no matter how owned or organized, be treated equally under the tax system of the nation.

In Canada this situation was brought to a head by the advent of a Socialist Government in Saskatchewan which proceeded to take over several types of business. The Dominion Government then could no longer ignore the fact that the Province of Saskatchewan could completely escape Dominion taxation by complete socialization; and that this course was open to any other province.

Thus it is that in the new fiscal agreements that were proposed by the Dominion, and which are now being drawn up between the Dominion Government and certain provinces, the Dominion stipulated that should a province socialize any business, the amount of the tax revenue which the Dominion got from that business would be deducted from the annual payment made by the Dominion to the province.

It is interesting to note that in some of the new governments that are being set up in Europe, where the question of socialism is ever present, the government guards itself from the dilemma which has been becoming more and more pressing in Canada. For instance, in Czechoslovakia publicly owned companies are subject to taxes just as are private concerns, and the government assumes no responsibility for their debts —they have to finance themselves through ordinary financial channels.

Oliver Wendell Holmes once said, "I find the great thing in this world is not so much where we stand as in what direction we are going." Our fundamental choice, as to where we are going, is on the one hand to build as intelligently as human beings can upon the type of economic, political, and social society we have and know; on the other hand, it is to trust our all to a socialist or communist system which puts final power, not only politically but also economically, into the hands of those who control the state machinery, knowing that if our trust proves wrong, we shall have a dictatorship whose possibilities for ruthless completeness are such as the world has never before seen.

This is the fundamental issue.

I would like to suggest that the peoples of Canada and the United States will look at their assets under free enterprise, which consist of:—

By far the highest standard of living in the world;

A continent-wide area free of historical suspicions and jealousies, free of war, free of class society, whether aristocratic or militaristic;

A political system where the rights of the individual and of associations of individuals like trade unions are protected by the law, and where elections have always been free and the ballot secret.

Our peoples will look at these things and they will need an awful lot of convincing that they should give up this magnificent birthright.

But the supporters of free enterprise have to be much more alert than they have been. The collectivists are very well organized and many of them have nothing else to do but to propagandize. This means that despite their small numbers, they carry disproportionate weight in many trade unions, community organizations and suchlike.

Moreover, the times are confusing and the collectivists make full use of this.

Even some friends of free enterprise seem to take the resigned attitude that there is a world trend toward communism or socialism. They need to be told that it is easy for the Labour Party in Great Britain to enact statutes socializing one great industry after another; the test will come—and it is a gigantic test—in the Labour Government's ability to operate the business side of socialism efficiently and to keep it from getting snarled up with politics, while continuing to operate a democratic system.

They need to be told that communism has never gained power in any free enterprise country. It has succeeded in gaining power only in feudally organized countries that were in a state of total breakdown.

When people are defeated, starving, and worried sick about their children and loved ones, they will take the system that promises security, and in times of breakdown this is almost always a dictatorial system. Even so, the poor people rarely get what they expect. The peoples of Italy and Germany traded personal liberty for security—and ended up with neither.

We have, too, the rather confusing example of the world's premier free-enterprise country extending substantial loans to countries in the process of introducing communism or socialism, yet representatives of the latter, while clamoring for larger loans, will not hesitate to tell you just what the matter is with the United States and why socialism or communism, as the case may be, is so much better.

When you get right down to it, the basic fact is that neither socialism nor communism has proven that in practice it can either be democratic or support a high standard of living. The system of free enterprise has. Free enterprise has faults but it lays no claim to perfection. The faults are admitted, not concealed, as is the tendency under state domination; and there is a continuous democratic process going on of improving the system by raising working and living standards for everyone.

Selection and Training of Personnel

By M. S. Viteles

Director of Personnel, Research and Training, Philadelphia Electric Co.

An address to a joint meeting of the Electrical Equipment Committee and Transmission and Distribution Committee, Edison Electric Institute, Atlanta, Ga., Feb. 12, 1947

THE enviable reputation of the electric utility industry hinges largely on its outstanding accomplishment in supplying an uninterrupted and a reliable supply of electrical energy at a reasonable cost. It is impossible, in my opinion, to overstate the contribution which engineers and other technical personnel of the industry have made to this accomplishment. It is largely the ingenuity and skill which they have shown in the design and installation of equipment and in the development of appropriate and safe operating procedures which account for the record of the industry in meeting the demands placed upon it for continuous service. Nevertheless, all the efforts of the technical personnel only too frequently prove of little avail, insofar as the avoidance of service interruption is concerned, because a man in some corner of the system opens a switch that should have remained closed; attaches a ground to a live circuit, or perhaps merely confuses two numbers in reporting the set-up of a circuit panel.

The technical man cannot be blamed if he figuratively or even literally pulls out his hair when the equipment and the procedures to which he has given so much careful thought do not serve their purpose because of the failure of the human element to which the operation of the equipment is entrusted. I say, he cannot be blamed but, in doing so, one reservation must be made. No blame can be attached only if the engineer in his managerial or supervisory capacity has recognized and made provision in advance for avoiding the potential weaknesses which grow out of the fact that machines are operated by men. In other words, he is free from blame only if, insofar as it lies within his sphere of responsibility and influence, he has made every effort to use the same scientific and proven methods in the selection, training and maintenance of personnel as he has employed in the design and installation of the machine.

There are available striking illustrations of the results which can be achieved by a scientific approach to the problem of selecting competent personnel. I suspect, however, that this group is not so much interested in reports attesting to value of tests and other psychological procedures as in answers to a few questions of the type which practical engineers and technical men are inclined to ask when considering the installation of an improved selection program. Instead, therefore, of starting with a series of testimonials, I shall consider such questions, referring incidentally to evidence which will indicate advances which can be obtained in the way of improved job performance from the use of improved methods in selecting and transferring personnel.

Test and/or Interview?

One question is asked frequently: *"Do tests take the place of the interview or supplant other methods now used in the employment of personnel?"*

The answer to this question is "No." Tests generally supply information to supplement that which is obtained through the application blank, references and, more particularly, through the interview in the Personnel Department and by the employing officer of the department for which the applicant is being considered.

It is not possible, now, and I question whether it will soon, if ever, be possible to use tests alone for selection purposes. There are aspects of personality which cannot at present be measured adequately by tests, and under any circumstances, the employing officer should satisfy himself that the applicant for employment or transfer is the kind of person with whom he can satisfactorily get along. However, in passing, it should also be noted that both the application blank and the interview are themselves subject to improvement by the application of scientific methods. In the selection of salesmen, for example, a weighted score obtained from an application blank and the "patterned interview" seem to produce better results than do psychological tests.[1] Although in a later discussion I shall refer almost entirely to psychological tests, there are, nevertheless, many situations in which further research on the improvement of the interview, such as has already been carried on by a number of psychological tests. All of this merely supports the point of view that tests supplement and do not substitute for methods which are now being used in the assessment of applicants for job vacancies.

Results of Psychological Testing

A natural outgrowth of the question already discussed is the query, *"How much better are the results obtained in employee placement when psychological tests and allied techniques are used than are those obtained when only traditional procedures are used?"*

The answer to this question is that where psychologists have been given the opportunity to conduct thorough and continuous research, better results have usually been achieved in the selection and placement of employees than can be obtained through the use of only traditional methods. There is considerable evidence that, where a testing program is set up on the basis of adequate research, considerable improvement can ordinarily be anticipated in the way of increasing the proportion of qualified men selected; shortening the training time; decreasing the number of errors in accidents; reducing labor turnover, and accomplishing similar worthwhile objectives.

Many of those here are probably familiar with the results obtained through the use of tests by the Philadelphia Electric Company in the selection of electric substation operators. Here, within approximately four years after the installation of the testing program, the number of operating errors was reduced from an average of 36 to 12 per year, and was further decreased to an average of about 6 per year, for the period 1932-1945, following the installation of an improved training program.[2]

Another typical illustration is found in a marked decrease in the percentage of unsatisfactory apprentices as the result of the use of well-standardized tests by the Scovill Manufacturing Com-

PROGRESSIVE VALUE OF SELECTION

Dates Hired	Group	Number Hired	Number Satisfactory	Percent Satisfactory	Remarks
1-1-20 to 8-31-26	I	67	36	63	Selected by interview only.
	II	50	28	56	
	III	56	35	63	
	TOTAL	163	99	61	
Yearly Groups 9-1-26 to 8-31-30	IV	40	36	90	Selected by interview and the Scovill Classification Test.
	V	44	33	75	
	VI	35	32	91	
	VII	36	28	78	
	TOTAL	155	129	83	
Yearly Groups 9-1-30 to 6-1-37	VIII	13	11	85	Selected by interview, Scovill Classification, MacQuarrie and Wiggly Block Tests
	IX	1	1	100	
	X	3	3	100	
	XI	12	12	100	
	XII	21	19	90	
	XIII	32	26	83	
	XIV	65	62	95	
	TOTAL	147	136	93	

Fig. 1—Scovill Manufacturing Company Testing Program for Selecting Metal Trade Apprentices.
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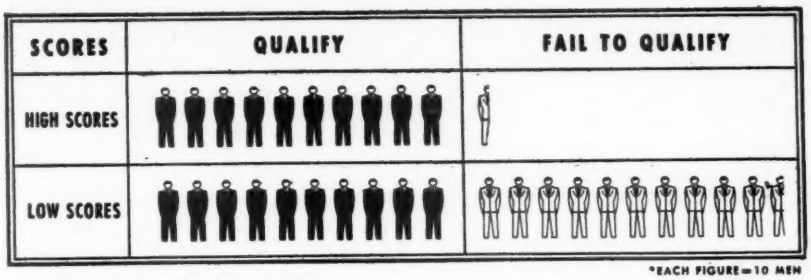

Fig. 2—Results of Motor Ability Tests in the Selection of Street Car Operators.
Reprinted from American Transit Association, Selection and Employment of Transit Operating Personnel, 1946

pany.[3] The Scovill Testing Program was started late in 1923. Following an extended period of research, tests were introduced in 1926 in hiring metal trade apprentices. As is apparent from Fig. 1, "the percentage of unsatisfactory apprentices, which had hovered around 40 per cent for the previous five years, dropped to 17 per cent. In 1930 after a similar study of additional tests, two more were added to the battery, and the percentage of unsatisfactory apprentices dropped to about 8 per cent. The foremen who rated the apprentices on their progress and skill in mechanical work never knew the test scores. Not only was there a sharp decrease in the number of unsatisfactory apprentices with each change, but the unsatisfactory apprentices were more readily dropped by the foreman, instead of being carried along to fail ultimately, when the foremen realized they could be replaced by better boys.

In the ten years subsequent to 1930 new and higher requirements for potential development of trainees beyond the original goals were set, the number of apprentices trained currently increased, etc. Nevertheless, the percentage of failure, as of 1941, was still about 8 per cent. This fact is attributed to an enriched interviewing technique which, incidentally supports what I have said earlier concerning the advantages available from the study and improvement of interviewing methods.

The testing program of the Philadelphia Electric Company, involving the selection of meter readers, machinist apprentices, overhead line apprentices, appliance service apprentices, and other groups of employees provides many illustrations of the fact that when tests are used to supplement the traditional employment techniques, better results can be obtained in the way of hiring qualified employees than can be achieved through the use of only the traditional methods alone.[4] As a matter of fact, I could spend practically the entire morning citing additional illustrations of the proven value of psychological methods in selection and placement. Such a review would, however, also demonstrate clearly that consistent results in the way of improved performance can be procured only when both the business man and the psychologist are willing to make an adequate investment of energy, time, and funds for the exact scientific determination of the value of the proposed method. The psychologist has no mysterious power to penetrate the secrets of the individual's occupational abilities through the use of magic formulae which make it unnecessary to expend time, effort, and money in order to get results. On the other hand, as I have said before, where psychologists have been given an opportunity to conduct thorough and continuous research, substantial gains have been obtained in the way of improving employee performance through better selection and placement.

How Accurate Are Psychological Tests?

Another question frequently asked is *"Are tests 100 per cent dependable?"*

The answer here is again, "No," if by dependability is meant that the use of tests will result in the placement of only employees who will meet the job performance standards; in the rejection of all who will fail to meet such standards, and in the rejection of none who can be expected to meet them.

Unfortunately, the professional psychologist has sometimes spoken with such enthusiasm about his tests as to give this mistaken impression that they are infallible instruments. Moreover, the average employer who has heard a speech about tests frequently ends by expecting too much of them. The fact is that in the use of tests and allied psychological techniques, we are dealing simply with "probabilities" and not with certainty. The psychologist, as other scientists, deals largely with "probabilities" and not with certainty. In all scientific fields there are only few generalizations which give the same certainty of prediction as the law of gravity. This limitation applies with special force to psychological generalizations, particularly as they refer to the prediction of individual performance in specific work situations. However, on the basis of adequate statistical treatment, its is possible to make accurate predictions as to the characteristics of a group hired through the application of improved psychological methods—predictions as to the proportion of those employed who will qualify for the job and be retained, and the proportion who will prove unsatisfactory, and be eliminated.

The situation is analogous to that found in the field of vital statistics. The actuarial statistician can predict the number of deaths, the number of cases of pneumonia and of measles which will occur in a given period among men, 30, 40, 50 and 60 years of age. In the same way, the psychologist can predict how many "good" workers, how many "average" workers and how many "poor" workers there will be among men with scores, let us say of 60, 70, and 80, respectively, on a well standardized battery of psychological tests.

How this works in practice is illustrated in Fig. 2, showing the results from the use of Motor Ability Tests in the selection of street car operators. Using a score of 90 or above on this test, it was found necessary to hire only 105 men to obtain 100 qualified operators (candidates who were able to complete a rigid training course satisfactorily).[5] Using a score below 40, it was necessary to hire 206 men to obtain

100 qualified operators. With a score of 60 to 69, 141 men are needed to obtain 100 qualified operators.

In considering these data, it is to be noted that even with the highest scores there were still five men who failed to make good on the job. In the illustration cited, the dependability of selecting qualified employees increases as higher scores are used in selection, but in no case was 100 per cent dependability achieved.* As a matter of fact, I would be very suspicious of any report which stated that such a degree of dependability had been reached. Nevertheless, such figures indicate both the improvement which can be effected when tests are used to supplement ordinary employment data and the way in which known probabilities for selecting qualified personnel with scores at different levels can be used to advantage in selecting the highest possible proportion of qualified workers from the available labor supply. For a "key" job, involving great expenditures for training, the passing score will probably be set high so as to decrease the number of non-qualified personnel selected even though many potentially satisfactory candidates will simultaneously be eliminated from employment. For other jobs, in which the cost of training and of labor turnover are not high, it may be desirable to use lower passing scores, even though a large number of men will have to be hired, and a greater proportion of terminations will result in the process of filling a given number of vacancies. At all times, the conditions of the labor market will play an important role in determining how far an organization can go in the matter of taking maximum advantage of such increased dependability as is inherent in the use of higher test standards.

* It should be noted that as test standards are raised, the proportion of workers potentially qualified to meet a fixed level of proficiency who are rejected for employment also tends to increase. This is one of the costs paid for decreasing the number who must be employed to obtain a given quota of employees fully qualified to meet the performance standards of the job.

Finding the Proper Test

Another question which is frequently asked is, *"How can my company find the tests which will help us select the best employees?"*

In dealing with this question it might be said at once that one of the least satisfactory ways of picking the tests to be used is to go to a neighboring company, obtain copies or samples of its tests, and install them. I do not mean to imply that such tests will always prove to be without value to the company that accepts them. For example, the validity of certain standardized mental alertness tests and tests of clerical aptitude and proficiency have been so well established that they frequently prove acceptable and useful without much basic research by the company. However, organizations differ widely in terms of standards of job performance and in terms of available labor supply. For these reasons, even in the case of generally acceptable tests with known validity for particular kinds of jobs which are fairly common throughout industry, there still remains the problem of establishing the norms to be used in the elimination of unsatisfactory applicants and the selection of satisfactory applicants in terms of company standards and of company needs.

Using tests found satisfactory by another company in selection for some specialized job is hazardous for still another reason. In many instances the same job title frequently covers entirely different responsibilities and functions and the relationship between test results and job performance may therefore not carry over to another organization. This situation is well illustrated in work which was done under my direction in the installation by the Detroit Edison Company of tests for the selection of electric substation operators originally developed for use by the Philadelphia Electric Company.[6]

Initial experimental work and later follow-up on the Philadelphia Electric Company system indicated that two series of tests, a battery of pencil-and-paper tests known as Series A, requiring approximately 30 minutes for administration, and a battery of pencil-and-paper tests known as Series B, requiring 1½ to 3 hours for each applicant, were needed to obtain optimal results in the selection of men qualified to do switching

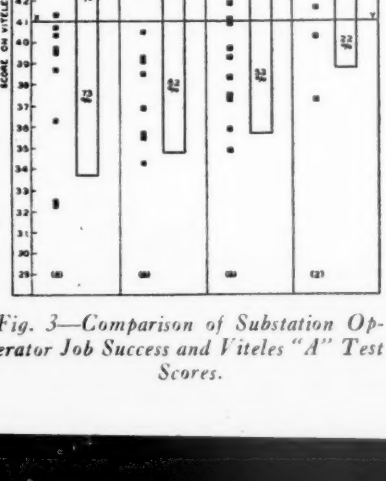

Fig. 3—Comparison of Substation Operator Job Success and Viteles "A" Test Scores.

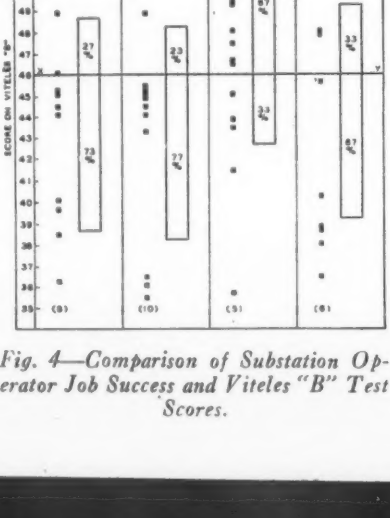

Fig. 4—Comparison of Substation Operator Job Success and Viteles "B" Test Scores.

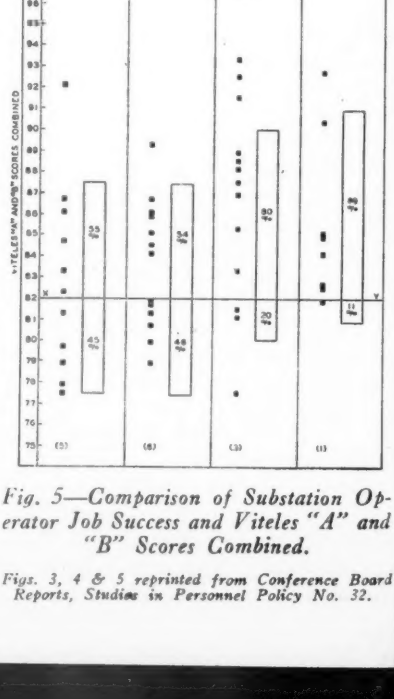

Fig. 5—Comparison of Substation Operator Job Success and Viteles "A" and "B" Scores Combined.

Figs. 3, 4 & 5 reprinted from Conference Board Reports, Studies in Personnel Policy No. 32.

accurately. The research carried on in installing the tests on the Detroit Edison Company system showed that although not quite as effective on that system as on that of the Philadelphia Electric Company, the test batteries contributed a valuable addition to other selection techniques. The initial investigation also suggested that Series B was much less effective than on the Philadelphia Electric Company system, and that satisfactory results might be obtained through the use of Series A alone. It was, therefore, recommended that additional research be conducted to follow up on the value of the two test batteries.

Comparison of Two Tests

In such a follow-up study, made by the Detroit Edison Company, the test scores of 48 operators who had met the passing score on Series A and B were compared with their performance on the job.[7] Of these, 11 had been separated from the company because of inability to learn the work, and 37 retained as qualified to learn and to do the work. These latter were rated by a member of the department who was well acquainted with all of the operators, as to whether they were relatively the best, average, or poorest operators in the group.

Figs. 3, 4, and 5 showing the distribution of test scores for these four groups of operators on the test batteries, reveal the relationships which were found to exist. It is apparent that scores on Series A alone are more closely related to job performance than scores on either Series B alone or Series A and B combined. By setting an optimum score on Series A at the point represented by "XY" on Fig. 3, 73 per cent of those persons who had failed to learn the job, and 62 per cent of those still on the job but considered poorest could have been eliminated. This same score would have eliminated from consideration only 53 per cent of the average and 22 of the best. On the other hand, the distributions of scores on Series B alone differ only slightly in the four groups, those separated for inability to learn the work having done just about as well as those who became the "best" operators. When Series A and B are combined, better relationship is less than obtained with Series A alone, thereby eliminating the most time-consuming part of the test from the standpoint of administration.

Comparisons with the results obtained by the Philadelphia Electric Company are not altogether valid because the group studied on the Detroit Edison Company includes only those who originally made passing scores on both Series A and B, and also because of the fact that ability to learn the job and ratings rather than operating errors were used as the measure of performance on the job. Nevertheless, this is a good example of how tests may function differently under apparently similar conditions and shows the importance of conducting research and establishing standards within the company before tests used by another company are deemed acceptable for use.

The illustrations just cited are taken from the work of larger, relatively centralized operations which have competent psychologists on the staff of their personnel departments. It is recognized that smaller, particularly highly decentralized companies, may not find it economically justifiable to add such specialists to their personnel to make the investigations which are required to determine the usefulness of particular tests in the company situation. Such companies can often handle their problem by using part-time expert consulting services available at universities located in their territories. Beyond this, there is tremendous opportunity within the electric utility indusry for cooperative research on the construction, standardization, and validation of improved selection methods such as has been carried on in connection with the design and standardization of equipment. There has been much talk at meetings about the better selection of personnel, much exchange of ideas, and entirely too little of the process of working together, possibly under the auspices of the EEI; which could serve as a coordinating agency for cooperative research in applying the scientific approach to the improved selection and placement of employees in the electric utility industry.

Research Program of the A. G. A.

The American Gas Association has recently taken steps in the way of such cooperative research, involving a number of companies, which may be of special interest to this group. In the fall of 1943, a sub-committee of the Committee on Personnel Practices of the A.G.A., known as the Advisory Committee on Psychological Tests,* was formed to conduct research on the development of selection tests for the mutual benefit of member companies of the Association. A questionnaire was distributed to all members companies requesting their cooperation in such a project. Twenty companies indicated an interest in participating in such a cooperative research project.

Following conferences with the chairman and members of the Committee on Personnel Practices, it was agreed that the function of the Advisory Committee should be that of conducting research useful to the industry at large. It was further agreed that it was not the function of the Committee to give general advice on testing programs to individual companies or to promulgate bulletins or circulars on general problems of psychological testing.

At a meeting of the Advisory Committee in the spring of 1944 it was further agreed to concentrate attention on the development of test batteries for specific occupations, (1) common to member companies; (2) fairly uniform in character throughout the industry; (3) for which reasonably objective criteria or measures of performance on the job were available. Meter reading was chosen as a job fulfilling these requirements.

The Testing Program

A battery of tests was selected for study. This consisted of a group of five tests which have been successfully employed by the Philadelphia Electric Company in the selection of meter readers for a number of years and several others, as follows:

Number checking test
Number copying test
Arithmetic computation test
Observation test
Minnesota Clerical test
Wonderlic Personnel test
California visual acuity

Approximately one and three-quarters hours were required to administer this battery, including time for instruction and preliminary remarks.

Trial Administration of Tests

In order to secure as large an experimental group as possible, attention was naturally directed to the larger combination companies. During the summer of 1944, arrangements were made by the Chairman of the Advisory Committee to administer the tests to the meter readers of the East Ohio Gas Company, the Public Service Electric and Gas Com-

* The membership includes John H. Donnelly, Philadelphia Electric Co.; Irene E. Gerlach, Philadelphia Gas Works Co.; Nina M. Russell, Consolidated Gas, Electric Light and Power Co., Baltimore, Md.; Arthur R. Laney, Jr., Chairman, Washington Gas Light Co., Washington, D. C.; Morris S. Viteles, Consultant, Philadelphia Electric Co.

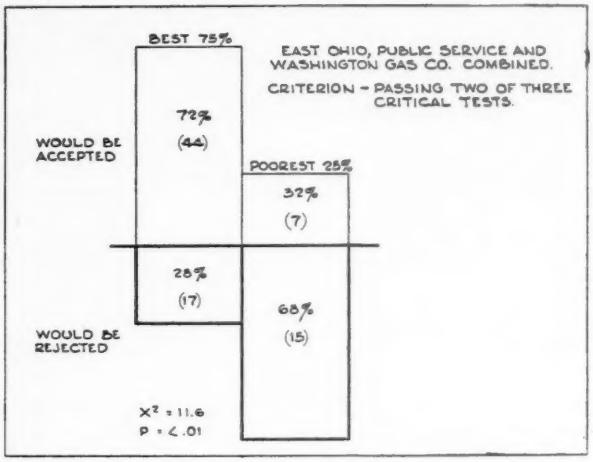

Fig. 6

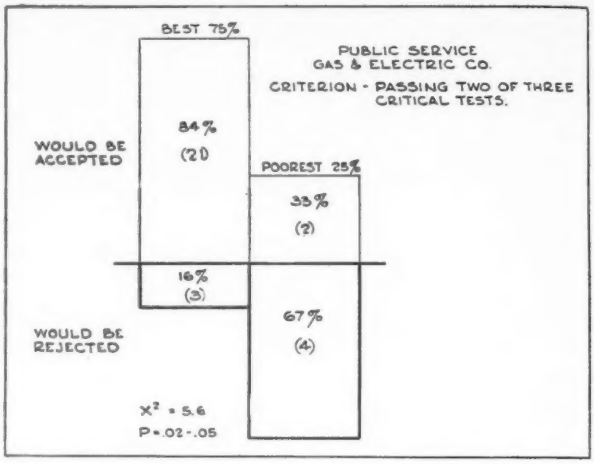

Fig. 7

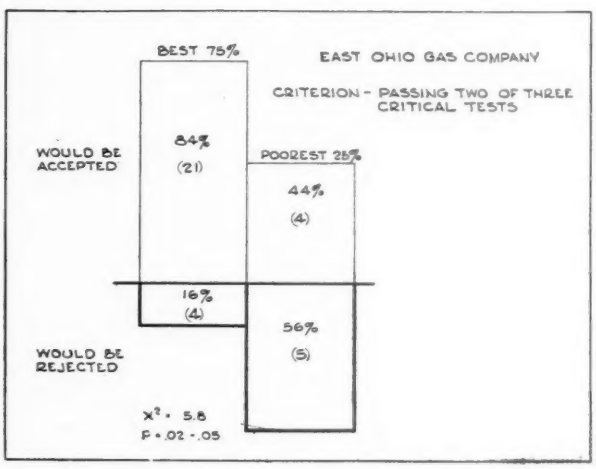

Fig. 8

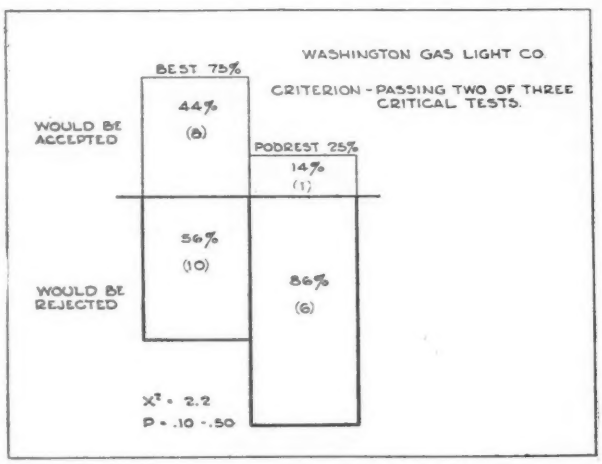

Fig. 9

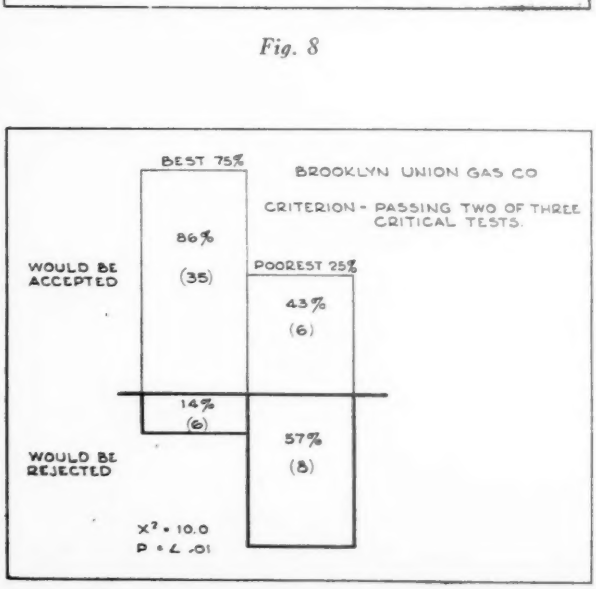

Fig. 10

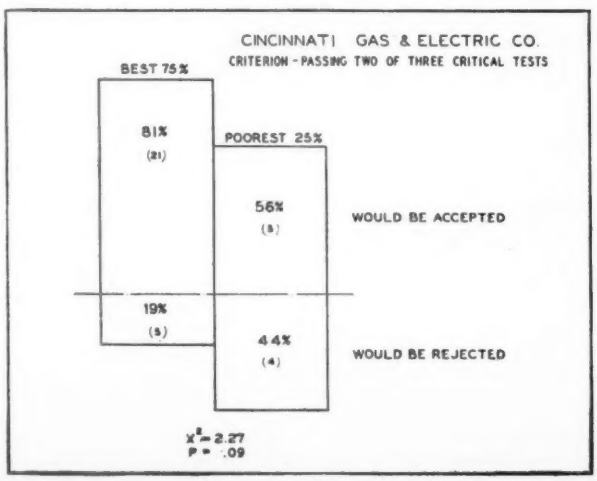

Fig. 11

pany of New Jersey, and the Washington Gas Light Company. This original experimental group consisted of 83 meter readers. Each company submitted a record for each meter reader of (1) the total number of "over and under readings" and (2) the total number of errors in subtraction when recording the readings covering a period of one year, together with data on age, education, years of experience as a meter reader, etc.

Analysis of Test Results For Three Companies

On the basis of their combined error record, the meter readers of each of the three companies were divided: Best 75 per cent; poorest 25 per cent.

When the tests results of this original experimental group were compared with performance on the job, as measured by the above mentioned criteria, it was found that 3 tests of the original battery, requiring 20 minutes for administration, showed significant results in discriminating between *best* and *poorest* meter readers on the basis of total errors in reading and errors in subtraction divided by total number of meters read. These three tests were:

(1) Number Copying Test (Philadelphia Electric Co. Battery)

(2) Number Checking Test (Philadelphia Electric Co. Battery)

(3) Minnesota Clerical Test (Number checking only)

"Critical scores" were determined by inspection for each of the three tests. Further analysis showed the desirability of setting up a program under which an applicant for employment as a meter reader would be required to meet the critical score on two of the three tests. The results obtained by applying such a standard of selection are demonstrated in the charts accompanying this paper. Essentially, each of these charts answers the following questions:

What percentage of the *best* 75 per cent of the meter readers would have been accepted and what percentage rejected if the tests had been used in employment?

What percentage of the *poorest* 25 per cent of the meter readers would have been accepted and what percentage rejected if the tests had been used in selection?

It is apparent from Fig. 6 that for the three companies 72 per cent (44) of the *best* meter readers would have been selected, but that 28 per cent (17) would have been rejected.

In the case of the *poorest* meter readers, only 32 per cent (7) would have been accepted and 68 per cent (15) would have been rejected.

There is another way of assessing the results, namely, by considering the percentage of those who would be accepted and rejected, respectively, who fall into the *best* 75 per cent and *poorest* 25 per cent of meter readers, respectively. In the three companies combined, 51 men "passed" the tests. Of these, 44 or 86.3 per cent are classified in the *best* 75 per cent of meter readers, and 7, or 13.7 per cent, are classified among the *poorest* 25 per cent of meter readers. In the three companies combined, 32 men "failed" the tests. Of these, 17 or 53.1 per cent are classified in the *best* 75 per cent of the meter readers and 15 or 46.9 per cent in the *poorest* 25 per cent of meter readers.

In Figs. 7, 8, and 9, such results are presented separately for each of the three companies included in the first step of the experimental study. It can be seen that the selectivity of the tests held up for the Public Service Gas and Electric Company of New Jersey and for the East Ohio Gas Company, but that the results are not as favorable in the case of the Washington Gas Light Company. In the case of the latter company, although a very large proportion (86 per cent) of the *poorest* 25 per cent of meter readers would have been rejected, at the same time, more than half (56 per cent) of those in the *best* 75 per cent of the group would also have been refused employment. Moreover, the relationship between test scores and job performance in the latter company is of the kind that would occur by chance in too large a proportion of the cases to make the results useful under the employment conditions existing in that company.*

As a second step, the tests were administered to 55 meter readers employed by the Brooklyn Union Gas Company. It is to be noted that this try-out constitutes a check on the stability of the results, since none of the data obtained from the Brooklyn Union Gas Company in the way of test scores or reports on performance as meter readers were involved in establishing the "critical scores."

* It is possible that the poor results in the case of the Washington Gas Light Company are, in part, a function of the criterion, that is, the manner in which the records of meter reading performance are obtained.

As is apparent from Fig. 10, had the meter readers of the Brooklyn Union Gas Company been required to "pass" two of the three tests, using the same "critical scores," 86 per cent (35) of the *best* meter readers would have been accepted for employment while only 43 per cent (6) of the *poorest* would have been employed. Conversely, 57 per cent (8) of the *poorest* meter readers would have been refused employment compared with only 14 per cent of the *best* meter readers.

Applying the second method of assessment, it is found that of 41 men who passed the test, 35 or 85.4 per cent are classified in the *best* 75 per cent of meter readers and 6, or 14.6 per cent in the *poorest* 25 per cent of meter readers. Of 14 who failed the tests 6, or 42.9 per cent are classified in the *best* 75 per cent of meter readers, and 8, or 57.1 per cent in the *poorest* 25 per cent of meter readers.

The observed relations between test scores and performance would be expected by chance in fewer than 1 per cent of duplicate experimental situations.

More recently, the tests have been administered to a group of 35 meter readers of the Cincinnati Gas and Electric Company. It is apparent from Fig. 11 that if the tests had been used on this group, 21 or 81 per cent of the *best* meter readers would have been employed, and 5 or 19 per cent rejected. Conversely, 56 per cent of the *poorest* meter readers would have been accepted and 4 or 44 per cent rejected. While the trend in these findings is similar to that found for the first of the "control" companies, i.e., the Brooklyn Union Gas Company, the results may nevertheless be obtained by chance in 9 per cent of duplicate experimental situations.

Test Results

In general, the results of the investigation so far lead to the conclusion that the battery of three tests, with the requirement that 2 out of 3 be passed represents a promising instrument for the selection of meter readers in widely scattered areas of the United States.

Although the results are promising, the Committee is not prepared to recommend the adoption of the tests for distribution by the American Gas Association until they have been subjected to check validation on at least two additional and preferably more companies. A try-out on unrelated applicants, supple-

mented by follow-up, would also be highly desirable.

If the results hold up, the Committee will, it is believed, be prepared to turn over for country-wide use a device that can be helpful in assuring a higher quality of performance in terms of accuracy of meter reading.

The A. G. A. program has been extended to include the development of tests for the selection of Appliance Servicemen. It is suggested that this program of cooperative research may well represent a prototype that can be beneficially followed by electric utility companies either through the EEI, or possibly through State associations. One advantage of such cooperative effort is the increased appreciation of the problems and of the technical character of methods acquired by those who participate in such a program. More important, still, are the benefits in the way of improved selection procedures which will become available to all companies, particularly to the small organization which is not in a position to conduct extended research of its own.

Coordinating Test and Training

There is still one more question, which, although seldom asked directly, is frequently implied in discussions concerning psychological methods in the selection of personnel. This question, baldly phrased, is *"Will tests or other psychological methods of selection solve all the company personnel problems?"*

The self-evident answer to this question is an emphatic "No." As pointed out in a discussion of the Detroit Edison Company testing program to which I have referred: "It is easy to credit failure to meet standards on the job to lack of desirable qualities in the employee, whereas inadequate job training, poor supervision, lack of proper motivation of the job, or any one of the many factors outside the employee himself may be responsible. Little is to be gained by improving selection techniques if necessary opportunities for proper development of new employees are not provided."[8]

Such development involves, first of all, adequate training. Full use cannot be made of the inherent aptitudes of men selected as fully qualified for the job unless they receive systematic training in correct safe practices of work and acquire the knowledge necessary in the efficient and safe performance of their jobs. Here, again, much is to be gained both from systematic research and from the immediate application of what is already known about human learning and about the best techniques for training men.

A striking illustration of the advantages of good training methods is to be found in an experiment conducted by Metropolitan Vickers Electric Co. in England.[9] Different methods were used in training for two groups of workers, matched for ability, to assemble electric bulbs. The first group was taught by the method then in use in the plant, namely, that of merely showing the worker how to do the job and then giving her an opportunity for routine practice of the operation under supervision. In the case of the second group, there was preliminary discussion of why the job was done in the particular way; explanations throughout instruction of the reasons for using a particular tool, for holding the tool at a given angle, and for other details of the job, and systematic demonstrations of the correct method of work. In other words, they were well-trained on the HOWS and WHYS of the working methods. While preliminary instruction of the second group took a little more time than that required for the first group, the former was able to reach in 40 practice trials, the level of production attained only after 300 practice trials by the group trained under the methods traditionally followed in the plant.

Research done by psychologists working with the military forces during World War II furnishes many illustrations of the practical outcome of experimental study of the training situation. Ordinarily little attention is given in industry to the question of how training time can best be distributed, although there is much evidence from a great number of studies that the number of hours required for training can be reduced and the level of performance increased by a proper distribution of the hours available for training.

Training Methods Research

The importance of this was called forcefully to my attention when I first started working in industry about 25 years ago. One of my first undertakings involved the development of a test for the selection of motormen, which is still in use, for what was formerly known as the Milwaukee Railway and Electric Light Company. Of necessity, this work started with a job analysis, in the course of which I learned to operate a street car by going through the course which was then in use for the instruction of new operators. In this training program, the apprentice motorman spent from 10 days to 2 weeks in training, being assigned on each day to a different motorman on a different run. I quickly found that practically each motorman under whom I took training had his special "tricks"—individual ways of handling the controller, the air brake handle, and other tools of the job. Instead of receiving from day to day uniform training in a standard way of doing the job, there were variations in what I was taught from day to day. For handling the air brake, for example, one motorman recommended long "bites" of air. Another recommended short "bites." On one day I was taught to use one combination of movements for closing the door and starting the street car most expeditiously; the next day I was forced to learn an entirely different combination of movements. The total effect was to leave me at the end of the training period without any fixed notion of how the job could best be done and in the situation of having to develop for myself what I considered, perhaps incorrectly, to be the best way of handling the car smoothly, quickly and safely.

I suspect that, in spite of the progress made during the past 25 years, there is still a great deal of such diversity in training given by different supervisors. The exact extent of this cannot be determined without a systematic examination of the situation. How this can be done is illustrated in research on pilot training conducted under the auspices of the National Research Council Committee on Selection and Training of Aircraft Pilots,[10] with funds provided by the Civil Aeronautics Administration. This Committee, in research carried on at Purdue University, started by finding out just what flight instructors actually did and said in teaching pilots. Discussions with both flight instructors and students showed that there were wide variations in instructional practices. However, nobody had had an opportunity to observe directly how the instructor went about the job of training pilots, especially in the primary and secondary phases of instruction since observers could not be carried in the two-place planes used for such instruction. It was therefore found necessary, as a first step in research on training, to develop methods for listening in on conversations between an instructor and student during training flights and for recording such

(*Continued on page* 82)

Planned Lighting for Profit Load is Theme of Institute Sales Program

"PL MEANS PL"— Planned Lighting means Profit Load—is the keynote of the industry-wide Planned Lighting Program sponsored by the Edison Electric Institute. The campaign, aimed at increasing the use of Better Light in five major markets—residential, store, school, office and industrial—employs an entirely new approach, and will offer electric companies the most comprehensive group of educational and promotional materials ever prepared for use in the lighting field. The first elements of the program are expected to be ready for use within the next month or six weeks.

A plan book, outlining suggested sales procedures, market data, advertising plans and other information, is being prepared for each of the five lighting markets. Each plan book will have a complete line of supporting materials, such as direct mail pieces, newspaper advertising suggestions, films, and other sales and instructional aids. An overall plan book, which lists the objectives of the program and illustrates the need for lighting activities by the power company, during the present period of revolutionary changes in the lighting market, is being distributed this month to executives throughout the industry.

This program, designed for use by the entire industry, is being prepared by well-known utility lighting men, with the assistance of an advertising agency long experienced in lighting promotion. The supplying of a program of this wide scope will eliminate much duplication and wasted effort, will help the power company better to map its own lighting development plans, and to select promotional materials suited to its own needs.

Importance of Lighting to Company

The Planned Lighting Program is the answer to a serious problem which will shortly face electric company executives—that of determining which sales activities will best produce net revenue—Profit Load—and thus help the company to build soundly for the future. Lighting, it is pointed out, is the source of from one-third to two-thirds of the average company's revenue, depending upon the character of its industrial load.

Other important aspects of the lighting load, so far as the average power company is concerned, are that this revenue is obtained at a minimum capital investment in new facilities for serving the customer; lighting also affords the best available means of building minimum-bill customers into the more profitable groups, and during periods of declining customer purchasing power, lighting offers the electric company a greater degree of security in steady revenue.

To many power companies, lighting means more customer use in the higher rate blocks. The lighting installation that is soundly planned to meet customer requirements builds not only net revenue, but also goodwill and is a sound means of keeping good customer relations.

Planned Lighting for Each Installation

The entire EEI program is built around the concept of Planned Lighting for every customer's home and place of business, no matter what the size of the installation or the number of fixtures purchased. If the customer is to gain all the benefits of Better Light, his equipment must be carefully selected for reliability and efficiency, and his installation must be planned according to the latest practices in lighting, it is emphasized in all program materials. For lasting satisfaction with his lighting installation, the customer should refrain from buying any type of equipment until a careful plan has been made to fit his individual needs.

Today's lighting customer needs expert advice and sound planning more than ever before. Among the factors contributing to the need for planning in each lighting installation are the continual changes in lighting techniques occurring today; the choice of several light sources that is now offered to each customer; the ever increasing number of fixture designs and types, and the entry into the lighting field of some unreliable manufacturers, who sell inferior equipment and usually, on a price basis only.

When the uninformed customer buys his fixtures on a salesman's promise, and without a lighting plan, the usual result is an inadequate and unsatisfactory installation, which will normally cost almost as much as would a soundly engineered lighting job. The result is a dissatisfied customer, and a harmful effect upon utility revenues and lighting equipment sales, that could easily have been avoided, had experienced advice and a sound planning service been available to the customer.

Program Offers Vast Possibilities to Company

Through the Planned Lighting Program, the power company can provide all elements of the electrical industry in its area—wholesalers, contractors, retailers and manufacturers—as well as architects and builders, with the program's basic concept of Planned Lighting, to serve as a guide in designing and installing their own lighting sales. The company can also supply lighting counsel and leadership in all phases of marketing and installation of lighting equipment, thus increasing the business of local industry elements, and helping to organize them as an auxiliary sales force.

Through the advertising, sales and educational materials made available as part of the program, the company can sponsor an aggressive educational and promotional activity to show the customers the benefits of Planned Lighting, and inform them as to how the electric company's trained lighting representatives will assist in solving individual lighting problems.

Plan Books Present Complete Activities

The plan book for each of the five major lighting markets presents the idea of Planned Lighting, as it can profitably be applied to the conditions of that market, and then proceeds to describe in detail a suggested promotional plan for successful activities in this field. As an example, the plan book for store lighting first describes the characteristics of this market, the potential revenue that may be secured by aggressive sales efforts, and the organization and methods best suited for successful selling in this market. It then presents a complete sales and promotional plan, indicating step by step the practices that are recommended, many

of which have been proven successful in this field.

Among the materials included in the sales plan book for store lighting are a series of 12 direct mail pieces, planned for a complete year's campaign. Each stresses the benefits of Better Light, and invites requests for a booklet offered by the company, which is also part of the Planned Lighting program, and which presents profitable lighting ideas for stores.

A visualizer for use by the store lighting salesman in his customer contacts is another important part of this activity. Newspaper advertising suggestions, consumer booklets, posters and other promotional aids are also part of the store lighting program.

The educational and promotional aids provided for use in the residential lighting market include an extensive series of direct mail pieces; several consumer booklets, with helpful information on home lighting and wiring, ideas for modernizing home lighting, and other subjects; newspaper advertisements, point of sale helps, and a comprehensive sales training film on home lighting, for use in training company and dealer sales personnel.

Much of the materials for use in the residential program are being prepared by the Better Light-Better Sight Bureau, and employ the educational approach in informing customers of the advantages of good home lighting.

The programs for the office, school and industrial lighting markets are supplied in as complete detail, and with an equal wealth of supporting materials as are the store and residential lighting campaigns.

Program Keyed to Present Situation

The Planned Lighting program, the Institute feels, is keyed to take advantage of the present widespread public interest in building and modernizing of existing homes and places of business, which in turn has increased interest in lighting.

New light sources, particularly fluorescent, and new, more efficient lighting equipment will soon be available in quantity. New concepts of quantity and quality of lighting, essential for eyesight protection in homes and schools, and for increased production in factories, can be linked with broader, more powerful sales appeals, and improved educational and sales techniques, of which full use is made in the Planned Lighting program.

Through the coordinated, all-industry approach to lighting sales, and the fusion of sales and engineering talents in this field, that are made possible by the Planned Lighting program, increased sales of power and lighting equipment will be made possible, on a broader scale than has ever before been possible. In addition, it is confidently expected that this program will offer a theme to serve as a standard for all lighting installations, and thus presents a method of combating unethical lighting equipment organizations now invading the field. The effects of this program, in terms of increased customer satisfaction and improved public relations, will be both beneficial and lasting.

Selection and Training of Personnel

(*Continued from page* 80)

conversations. This was done through the construction of ground-to-air transmission and recording apparatus which made available for analysis student pilot-instructor conversations. This was later supplanted by recordings on air-borne magnetic wire recorders developed in the course of Committee research.

Such an analysis revealed many interesting items about the nature of instruction in the air. Frequently the recordings were most revealing to the instructors who, when given an opportunity to listen to their conversations, were amazed to hear just what they had said. So, for example, until he heard his recorded conversation, one instructor refused to believe that he was telling students that the airplane steered just like a "sled" when the reverse is actually the case. Another became aware for the first time why so many of his students were failing spins in the final flight examination when he heard his voice consistently go into a high pitch of hysteria as the student went into the spin and undertook to recover.

Qualitative observations of this type proved to be extremely helpful in revealing how the instructor taught and what students went through in learning to fly. Even more interesting were the findings of the systematic analyses of flight instruction recordings. One of the most significant of these was the revelation of great variation in vocabulary or terminology from instructor to instructor. In a study made of pre-solo dual instruction of four students by four instructors, it was found that 500 technical terms or phrases were used. Many of these terms were peculiar to the instructor and were used without explanation to the student. Only one-seventh of the 500 terms were used by all four instructors. Over half of them were used by only *one* of the *four* instructors. Approximately one-third of the terms used are employed only once and by only one instructor. Such terms represented not only a private language of the individual instructor, but also are rarely used by that instructor. The outcome of this study was a series of manuals containing material to be covered on the ground and in the air, including standard "patter" for instruction and a standard course of training methods applying to the instruction of pilots.[11]

Such research, which has been duplicated in connection with other military tasks, has resulted in the production of manuals on training methods which can be useful as examples to industry. "How to Teach Gunnery"[12] and "How to Teach Engineering,"[13] prepared under my direction at the University of Pennsylvania for the U. S. Navy are other illustrations of such materials. It may well be, for example, that "key points" on jobs are not made clear because different supervisors in industry use different terminology in explaining how the job is done, and some of the terms are highly technical or highly individual. The investigation of such differences and of individual variations in teaching methods, along with instruction on how to train workers, can produce for industry, as it has for military services, fruitful returns in the way of reducing training time and in improving the quality of employee job performance.

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Refrigeration, Present and Future

By Don H. Anderson

Oklahoma Gas & Electric Company

An address presented at the Power Sales Conference, Missouri Valley Electric Assn., Feb. 6 and 7, 1947.

THIS discussion is going to deal principally with the present and future of the frozen food business, but in order to get a clear picture of the future problems of this industry it will be necessary to bring in a little ancient history. A successful utility sales department is always on the lookout for some new and profitable current-consuming device to present to its customers.

In 1943 the Commercial Sales Department of the Oklahoma Gas & Electric Company was attracted to the possibilities presented by the frozen food business and began a detailed survey of the industry. This investigation was complete in every detail and the resulting information was that the public was going to demand frozen foods in larger quantities as soon as the supply was available unless this pent-up market was ruined by indifferent selection, processing, storage and service on the part of locker plant operators. We also found that in comparison to some other states we had very few locker plants on our system. We decided to go after this business for two reasons—one, that it produced good revenue with a very desirable load factor, and the other, that due to the nature of the business we were able to promote it during the war years. We also felt that the installation of locker plants was a small contribution to the food saving program in the war effort.

Prospect Survey

A systematic survey was conducted and an effort made to see that plants were installed in every sizable town. We began by finding the most likely prospect in each town and attempted to show him the possibilities of a locker plant in his community. We worked through the chambers of commerce and civic clubs and in every case we received their approval. In some instances they did part of the actual work necessary to obtain a plant in their town. Then the prospect was turned over to a locker plant contractor and we followed through with any assistance or advice we could give to either party. Increases were gradual each year, but leaving out past figures due to the lack of time, from July, 1945 to July, 1946 Oklahoma's locker plants for the state as a whole, increased from 150 to 299, an increase of 99 per cent.

Eliminating states such as West Virginia, Nevada, South Carolina and Connecticut which made spectacular gains in percentages but had few plants to start with, Oklahoma is second in increase in the nation, surpassed only by Georgia which went from 49 to 101 plants in the same period—an increase of 106 per cent. With these figures to support our claims we felt very proud of the results of our efforts.

Locker Plant Distribution

For the sake of comparison, the national increase was from 6,464 to 8,025, an increase of 24 per cent. Figures of the other states represented in this meeting that might be of interest are as follows:

Iowa—600 to 655, a 9 per cent increase.
Missouri—165 to 299, a 39 per cent increase.
Nebraska—294 to 345, a 17 per cent increase.
Kansas—315 to 340, an increase of 8 per cent.

This is a total of 1,868 plants in the Missouri Valley area, or 23 percent of the plants in the nation. The investment in these plants represents about 30 million dollars which, in my opinion, makes it an industry worthy of some support and protection. The utilities privileged to serve these 1,868 plants get enough revenue from this source that it is partly their obligation. At least we, in Oklahoma, think so. The locker business is good now—in fact, so good that the operators are obliged to turn away business. This is largely due to abnormal food conditions brought on by the war, but the time is not far away when the "honeymoon" is going to end and the operators are going to have to get their business like anyone else. That is, with satisfied customers.

There are two reasons why the operators are not prepared to handle the situation confronting them. One has been stated, which is that business has been coming in too fast for them to worry about the future. The second, and most important, is that so many people who knew nothing at all about food handling have opened a locker plant. Proof of this is found in a list of some of the operators in Oklahoma Gas and Electric territory. We found that men had gone from the following occupations into the locker business — farmers, druggists, creamery operators, cotton gin operators railroad brakemen, hardware merchants, salesmen, bankers, telephone and electric utility men, furniture storage, second-hand furniture stores, undertakers, lawyers, owner of a telephone exchange, lumber men, plumbers, and any number of GI's who had had no business experience of any kind. All this in spite of the fact that frozen food is the most highly specialized branch of the food industry.

We have plans which we hope will remedy some of these conditions so that when the food industry is normal again and "Mrs. Housewife" begins to look at this type of frozen foods with a more critical eye, the community locker-plant operator will be able to avoid some of the headaches that are bound to come.

Regional Education Program

Our first step is the promotion of an educational program among plant operators on our system and, in passing, I might say that we have plants as large as 4,300 lockers, but this plan is designed principally for the average locker plant in the average town. This has been done by the formation of regional groups, on the O G & E system, meeting at a centrally located place, for about two hours in the evening about every three months, to exchange ideas, discuss their problems, and hear talks by experts on the different phases of their business—such as sanitation experts, processing and wrapping experts, repre-

sentatives from paper companies who make the packaging and wrapping material, experts in business management and sales promotion, manufacturers of new and modern equipment for use in locker plants, etc. The manufacturer of home freezer and home storage units should play an important part in this plan for their success depends largely on public acceptance of the community locker plant. These are operators' meetings and we plan to take a back seat as soon as they are well under way.

Three of these meetings have been held—two in the southern division at Ardmore, Oklahoma, and the other in the Arkansas Division at Ft. Smith. The plan was presented and received the wholehearted approval of those present. In Ardmore, 13 out of a possible 23 plants were represented and in Arkansas 8 out of a possible 13. Both meetings had representatives from the wholesale paper houses and men from neighboring utilities. It was agreed that we all have a lot to learn about this new industry and its success depends on the knowledge of those people serving the public with frozen foods. Plans were made to hold the second meeting in Ardmore on January 23 and in Arkansas on March 1. The program was on processing and processing materials, with emphasis on fruits and vegetables. A detailed report was made on the new "No-Air Wrap" which seems to be the last word in processing frozen foods. However, more experimental work will be done on this new process for the benefit of every one concerned.

Frozen Food "Clinics"

The second meeting, held on January 23 in Ardmore, was successful beyond our expectations. Fifteen plants were represented by forty-one people. It was agreed to make the meetings permanent. Talks were given and discussions held on selection and processing of fruits and vegetables, and the thermoplastic "No-Air Wrap," together with frigid dough and its place in the frozen food field. A committee was appointed to take care of the next program and the meeting scheduled for the week of March 23. The subject for the meeting will be "Curing and Smoking of Meats." In the formation of the permanent meetings, it was agreed to call them "Clinics" and continue until every phase of the frozen food business had been well-covered.

We hope that these meetings can be made sufficiently interesting and educational so that the operators will see fit to make them a regular part of their business activities. Before we started, this plan was discussed with several people who should know, and most of them agreed that if we accomplished nothing more than to induce the operators to keep their plants sanitary it would be well worth the time and money spent. We hope to accomplish much more.

When you consider that the annual freeze can reach 40 billion pounds, according to the experts, and the Missouri Valley area should get one-fifth of this business, also that it takes ¾ kwhr to process, store and dispense one pound of frozen food, from processing to consumption, it does not take an expert to see the possibilities for plenty of good load-factor revenue from this industry. Of course, all of this depends upon public acceptance, and competition is going to be keen.

For the past two years our home demonstrators have been holding demonstrations on processing fruits and vegetables, selection and wrapping of meats and poultry and many other things for the benefit of the locker operator. We have been in nearly every plant on the system once, and several times in some of them Meetings of the locker patrons have been held in many towns, teaching them the proper way to use their locker and the food that is in it, the proper selection of fruits and vegetables for freezing and what they can expect from frozen foods, if these simple rules are followed.

To give you an idea of how serious we are in wanting to help this new industry, we have made up a questionnaire designed to ascertain a few things about the frozen food locker business. We want to arrive at some average figures on operating costs that we can take back to the individual operator and let him compare these figures with his own costs. This will give the operators an opportunity to see where they stand in comparison with other plants in their own locality and either feel proud of their operation or take steps to correct themselves.

Finding Frozen Food Figures

The National Restaurant Association can tell its members just what their food costs, labor, and other overhead should be on a given number of meals served, to enable them to make a profit. A restaurant operator does not have to lose all his money before he realizes that he is operating an unprofitable business. We hope to find out such things as:

The average size of the plants on our system.
What percentage of lockers are rented?
What is the average electric cost per locker?
The average plant investment?
What is the gross income per locker?
What is the average overhead?
What is the average processing fee, etc.?
How many plants are taking advantage of retail sales and other means of additional income and how successful are they?

The results of our first effort were disappointing for us. We found that many of the operators knew little or nothing about their operation, but all agreed that it might be a good idea to find out. They were using the "Two-Cigar Box" method of bookkeeping—the income in one box and the outgo in another. Some of them had very little idea how much food they had processed in the past year or how much their overhead had been. They just knew that they had more or less money in the bank than when they started.

What We Learned

However, we did learn some things that will be of benefit to all concerned and the utility in particular.

1. There are about 48,000 individual lockers on our system, or one for every 3.4 customers.
2. The size of the average plant is 552 lockers.
3. The average refrigeration load per plant is 9.9 kw.
4. The average total load is 12.49 kw.
5. The average plant demand is 11.38 kw.
6. The average annual load factor is 52.8 per cent.
7. The average annual kwhr per plant is 52,681.
8. The average revenue per plant is $1,183.65.
9. The average revenue per locker is $2.14.
10. The average annual kwhr per locker is 95.
11. The average revenue per kwhr is 2.25¢.
12. The average annual revenue per kw connected is $93.88, etc.

In the future, we plan to carry this survey much farther. We want to find out what the exact income of each plant is, their exact overhead, and how it compares with income. We want that overhead broken down to where the operator will know how much of it goes for labor, processing materials, utilities, rent, maintenance, and miscellaneous; exactly how many pounds of food are processed in a full year; how many pounds this is per locker; what the average locker rental and the average processing fee is, and many other things designed to give the operator an idea about the efficiency of his business as compared to the average.

In an efficiently-operated plant, the processing should pay the overhead and the locker rentals should be the profit, but how is a man going to tell unless he knows what his overhead is and how much his income is? It is one thing to get locker plants on your system and another thing to keep them there. We feel we get enough of their overhead dollar that it behooves us to do our best to see that they prosper. The Missouri Valley should get its share of industrial freezer plants for much of the territory is suitable for growing fine fruits, berries, and vegetables, as well as the grain-fed livestock in the corn belt.

Poultry is adaptable to freezing and many of the chicken and turkey growers in our territory are beginning to see the possibilities of a more stable market with sharp freezing. A dead bird eats no costly food and, when properly frozen and processed, will keep for months. It is not impossible that in the future 60 per cent of the food we eat will be sharp-frozen food.

This could go on for hours but it might leave the impression that low temperature refrigeration has the only possibilities in this branch of our industry. It is true that sub-zero temperature refrigeration will command the lion's share of attention in the commercial and industrial field but there are many other new developments of interest. The open-type dispenser of foods and perishables, using refrigeration of all temperatures, will increase sales of these commodities from 100 per cent to 300 per cent, which will increase kwhr consumption in proportion. Easy access to this type of merchandise will tend to bring it up to par with canned goods in the never-ending battle for the consumer's food dollar.

More and more semi-perishable items are beginning to require refrigeration. Pecan growers in our area are beginning to see the possibilities for a more stable market by being able to hold surplus crops for the higher winter and spring consumption, using refrigeration storage. Mild paste for use in manufacturing ice cream is another item that is requiring increasing amounts of refrigeration space. Application of mechanical refrigeration for keeping young evergreens, berry bushes, fruit trees, and other species of plant life dormant, is being used with considerable success and, when completely proven, will make a prospect of every nursery and greenhouse on the system. Ice cube and ice flake machines for use in hotels, cafeterias, restaurants, hospitals, night clubs, and many other commercial establishments, are another source of revenue which will give the utility a higher return per kwhr and a much greater load diversity in the ice manufacturing field.

We have all become so accustomed to refrigeration and the revenue we obtain from it that most of us think only in terms of yesterday and today. Not many years ago the temperature range was below 50F, and above 32F. Today that range, for practical use, has dropped to —30F, used in sharp freezing.

A great amount of experimental work is going on with temperatures as low as —90F and practical uses being found for these temperatures. We know that bacteria action in foods increases out of proportion above 50F. We also know that, at temperatures of —20F to —30F, food is frozen so fast that the water content is not allowed to form ice crystals that tear tissue in meat and tend to lower the quality of other foods, but what lies between —30F and absolute zero will probably produce more practical applications than we know today. We must not get the idea that refrigeration has even begun to reach the saturation point.

Research on Steam Contamination and Turbine Blade Deposits Recently Started

A RESEARCH program has been organized for the study of the factors which govern the introduction of impurities into steam from the water in the boiler, and the subsequent deposition of those impurities on the blades of turbines, especially turbines supplied with steam from high-pressure boilers. The work is under the direction of a joint committee on which are represented the Prime Movers Committee of the EEI, the Power Generation Committee of the Association of Edison Illuminating Companies, and boiler and turbine manufacturers. The personnel of this committee is as follows:

C. O. WHELCHEL (Chairman) — Buffalo Niagara Electric Corp.
C. B. CAMPBELL — Westinghouse Electric Company.
MARTIN FRISCH—Foster-Wheeler Company.
A. E. GRUNERT — Commonwealth Edison Company.
E. H. HORSTMAN—Allis-Chalmers Manufacturing Company.
ALFRED IDDLES—Babcock & Wilcox Corp.
J. N. LANDIS—Consolidated Edison Co. of N. Y., Inc.
S. T. POWELL (Associate Member)—330 N. Charles St., Baltimore, Md.
E. H. TENNEY—Union Electric Co. of Missouri.
JOHN VAN BRUNT—Combustion Engineering Corporation.
GLEN B. WARREN—General Electric Company.
S. F. WHIRL—Duquesne Light Company.
H. C. MILLER, *Secretary*—Public Service Testing Laboratories.

Steam produced in commercial boilers is never 100 per cent pure, but always contains small amounts of impurities which have their origin in the boiler water. The reduction of the quantities of impurities to a minimum concentration has long been an important steam-station problem, and the manufacturers of boilers have used various designs of purifiers for the purpose of removing the entrained boiler water from the steam before it is delivered to the main which supplies the turbine.

With the introduction of the modern high pressure boilers, however, the problem of steam contamination has become more than the mechanical removal of entrained boiler water. Concurrent with the development of the modern boiler, improvements have been made in mechanical steam purifiers and also in the art of water conditioning so that the steam delivered to high pressure turbines is purified to a degree which would have eliminated the problem of deposits in the old type machines. The newer turbines were found to be highly sensitive to a very low concentration of solids in the steam, however, and serious drops in efficiency, as well as costly shutdowns for cleaning, have become frequent occurrences.

The studies of the problem which have been made so far have indicated that the amount of impurities in the steam produced in this modern equipment can no longer be simply related to mechanical carryover from the boiler, but is apparently affected by some other factors which result from the higher temperatures, pressures, or both, that are now used. For instance, the proportion of silica to the other contaminants has been found to be greater in the steam

than in the boiler water, and hard deposits of practically pure silica occur in turbines even when the boiler water contains but a few parts per million of silica. This type of deposit was not encountered with turbines whose steam was supplied by low-pressure boilers, even when the boiler water contained many times the maximum concentration of silica which can be tolerated in a high-pressure boiler.

The proposed investigation will therefore deal with the behavior of substances under the conditions which exist at the high temperatures and pressures of the modern boiler and steam cycle. It will involve studies in a little known branch of physical chemistry as well as in the design and operation of steam station equipment. There will be considerable laboratory work involved and also collection of operating data, inspection of equipment and observance of boiler and turbine operation. It is expected that the accumulated experience of the organizations supporting the project will be of valuable assistance in carrying it out.

Arrangements have been made for carrying out the fundamental research program at the Armour Research Foundation of Illinois Institute of Technology, with Dr. Harry E. Robison as the project supervisor.

Progress reports will be issued from time to time during the investigation and whenever definite conclusions are reached regarding any phase of the study a technical report will be made.

Thomas A. Edison: Prototype for American Enterprise

(*Continued from page* 70)

Today, more than 22 million home phonographs are in use. Its commercial counterpart, the so-called "juke box," provides music in 500,000 establishments, and the public will buy more than 200 million phonograph "records" in 1947.

In his later life, Edison was asked "through what achievement do you prefer to be remembered by posterity?" To this question, Edison replied, "the *phonograph.*" It was undoubtedly his favorite invention, and he certainly counted it among the most valuable of all his works.

I could quote you facts and figures for many other great industries which either were started by Edison, or were improved, expanded, or made possible by his inventions, and scientific discoveries. The telegraph, telephone, electric traction, electronics, these, and many lesser known components of twentieth century living owe much to the work that Edison did.

Of the great lessons to be learned from the life, work and inventions of Thomas A. Edison, none could be more in keeping with the times than his philosophy that each new attainment is but a vantage point from which to search out new goals ahead.

A lesser man than Edison might have been satisfied, for example, with the invention of the phonograph. Certainly, Edison could not have been blamed had he done so, because that achievement, alone, would have provided a full lifetime of work and compensation. But, by not being satisfied; by constantly striving to open the portals to progress, Edison went forward from one achievement to another, constantly enlarging mankind's knowledge and benefits.

It was this spirit, and these practices, that enabled Mr. Edison, in his twilight years, to produce rubber from goldenrod, even though it meant months of study and research in *botany*, a field in which he (then an old man) had to begin as a groping neophyte. He undertook this research to provide his country with an emergency supply of rubber in the event of another war.

When one considers the life and career of Mr. Edison, one is struck by the realization that within his record of enterprise and accomplishments, lies a lesson for America to absorb and properly comprehend.

He did not invent the electric light, the phonograph, the motion picture, or any other of his more than a thousand creations, by dodging work, restricting production and output, or refusing to "think"; he did all of those things because hard, intelligent work and creative thinking formed part of his daily creed.

I do not mean to imply that everyone should work seventy, eighty and even ninety hours a week, as Edison did. Today it is neither necessary nor desirable, because men like Edison have provided us with the means at hand to produce, within a few hours, that which would have taken weeks, or longer, to produce, not so many years ago.

I would like to suggest that an America, still struggling with the problem of a successful reconversion to peace (much more than a full year after the cessation of hostilities) might well find the solution to its problems by taking a leaf from Edison's biography. His life's work and accomplishments challenge us to more intelligent efforts, to greater production, through clear thinking, *yes,* clear *constructive* thinking, to the end that we may make more things, cheaper; sell more things faster; create more and more jobs, and thereby better our country's economic situation in every way and in every direction.

America, today, can draw a great lesson from the study of the life of Thomas A. Edison. The essence of that lesson is that we should emulate him in working harder, emulate him in a better adherence to the Golden Rule, which he diligently practiced, and emulate him in a willingness to patiently think each problem through to its correct conclusion.

I believe these suggestions indicate the "Right Road" to follow and it surely is "The American Way."

Honor First Alex Dow Award Winners

FIRST winners of the Alex Dow Award, established by The Detroit Edison Company in 1946 to perpetuate the memory of its long-time president and to recognize outstanding accomplishments by employees, received their awards from James W. Parker, President and General Manager of the Company, on March 5, 1947. As many as five awards, each consisting of a gold watch and a United States Savings Bond will be made annually. Nominations are made by employees and the winners are selected by a board of employees.

The first five winners are:

Robert F. Elliott, for prompt and intelligent action in meeting an emergency threatening steam distribution lines brought about by a heavy rainstorm.

Arthur Gould, who designed and developed a new and valuable method for checking accuracy in the installation of high-temperature steam pipes in power plants.

George W. Hindman, who developed the cluster-transformer installation which has resulted in substantial savings to the company and the industry generally.

Warren H. McAlpine, for his great contribution in the safety training of personnel, his success in devising new safety devices and originating methods of teaching safety.

John Warner, for his work as a physiotherapist which aided many seriously injured employees toward recovery.

Quick Thinking—Acting Saves Lives—EEI Resuscitation Awards Prove

By Mae B. Woods

Secretary, Committee of Judges,
Edison Electric Institute Medal

NINETEEN power company employees who, in the midst of their routine duties, turned their knowledge of artificial respiration to practical use by saving the life of an electrical shock victim, were honored in 1946 by awards of the Edison Electric Institute Resuscitation Medals.

The case histories describing each award, that appear on the following pages, tell how sudden death was thwarted on the highlines and around the distribution systems, through the prompt, efficient application of artificial respiration by the pole top and prone pressure methods. The speed, skill and teamwork of which electric utility employees are capable has rarely been illustrated to better advantage than in the statements accompanying the awards.

What these statements do not reveal, however, is the background of this skill in life-saving; the intensive efforts of the safety director, in meetings and lectures and demonstrations, that are devoted to teaching artificial respiration; the hours of practical instruction in safety practice that are conducted on the job by foremen and experienced linemen; the carefully trained and developed ability to size up a situation, and then unerringly follow that course of action which will more quickly bring life-giving air into lungs that are paralyzed by electric current at high voltages.

Nineteen medals were awarded during 1946, bringing the total of awards made by the Edison Electric Institute to 207. Each award marks an officially certified resuscitation from electric shock by an employee of the electric light and power industry.

Of the 19 awards in 1946, 11 were for resuscitation of linemen who were shocked while working on poles. The other 8 awards include members of line crews who were shocked while working on the ground, sub-station personnel and others.

Data on other resuscitations recently sent to the Institute are now being considered by the judges for awards. The committee consists of Wills Maclachlan, Toronto, Canada; H. J. Burton, Consumers Power Company, Jackson, Mich., and W. R. Smith, Public Service Electric & Gas Company, Newark, N. J.

Employees of all electric light and power companies are eligible for the Edison Medal. A certificate describing the resuscitation, signed by the President of the Institute, is presented with each medal. Certificates of Assistance are awarded to those who have rendered valuable aid in the resuscitation. Miniature medals and certificates are also awarded to members of line crews who have participated in cases of successful resuscitation.

Brief statements of the circumstances leading to the awards made in 1946 follow:

J. D. WESTMORELAND
Alabama

On August 30, 1944, Lineman J. D. Westmoreland of the Alabama Power Company was directing the removal and reinstallation at another location of a 12-kv, 2.5-kva distribution transformer near Double Springs, Ala. The work was under the general direction of Foreman R. P. Hardeman, who had assigned Lineman J. L. Moore and Apprentice Lineman Ruben Brown to assist Westmoreland.

Upon arrival at the location where the transformer was to be installed, Westmoreland began to change the secondary connections in the new transformer from 120 to 240 volts. Brown was instructed to get the blocks ready. Moore, who already had his tools on, was seen to uncoil his hand line, start climbing the pole and fasten his safety strap just below the hanger arm.

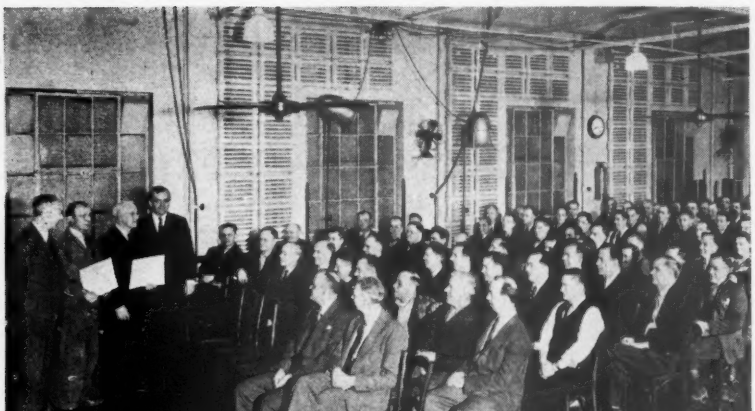
After a brief period, while both Westmoreland and Brown were working on their assignments, their attention was attracted to Moore by an electrical arc, which both men heard. Looking upward, they saw Moore leaning forward, with his left hand contacting the 12-kv primary transformer lead. His climbers were still engaged in the pole.

Westmoreland ordered Brown to hand him the switch stick, and at the same time, jerked on Moore's hand line, pulling him away from the transformer lead. Moore's knees buckled, and his climbers disengaged. Just then the 2-amp fuse on Moore's right blew, causing the cutout to open. Moore hung astraddle the pole, with his head thrown backward, in an apparently lifeless condition.

With Brown's help, Westmoreland got his tools on and climbed the pole, to a point immediately beneath Moore. He placed Moore astraddle his own strap, and unfastened Moore's safety belt. After telling Brown to bring Foreman Hardeman, Westmoreland descended about two steps down the pole and gave pole top resuscitation for about one minute.

Moore vomited and struggled, then re-

J. D. WESTMORELAND (at left), with John L. Moore looking on, being presented with the medal by Operating Vice-President E. W. Robinson of the Alabama Power Company. Winfield District Manager L. T. Hudgins is at Westmoreland's left.



Left to right: Vice-President Ralph L. Thomas, Henry Rodenberg, ERNEST L. BOONE, General Superintendent A. L. Penniman, Jr. and the assembled Meter and Installation Department, Consolidated Gas, Electric Light and Power Company of Baltimore, at the presentation of the Edison Medal to Mr. Boone and Certificate of Assistance to Mr. Rodenberg.

gained consciousness and told Westmoreland that he could breath unaided. When Brown and Hardeman returned, Westmoreland had Brown lying on the ground. Westmoreland had also told a passerby to get a doctor, who arrived shortly and dressed Moore's burns. He was then taken to a hospital in Jasper, Ala., where his left hand and right foot were amputated.

J. D. Westmoreland was presented with the Edison Resuscitation Medal and certificate by E. W. Robinson, Operating Vice-President of the Alabama Power Company, in the presence of almost the entire personnel of the Winfield District in which the accident had occurred.

STANLEY P. NARAZONICK

New Jersey

On June 1, 1944, a line crew of the Jersey Central Power & Light Company was engaged in removing cutout boxes from a pole carrying several secondaries, three phases of 4800-v primaries and street lighting cables, in Freehold, N. J. Because of the congestion on the pole, Foreman M. C. Franklin instructed his linemen to "use plenty of rubber goods."

Lineman William B. Doyle went up the pole, followed by Lineman S. P. Narazonick. They covered the secondary wires with line hose, the primaries with insulator hoods, placed a jumper on the primaries of the box selected to be taken out, and loosened the bolts holding this box in place. Doyle was on the east side of the pole, with his feet on the lower arm; Narazonick was at the opposite side, supporting the box.

When the box stuck, Doyle leaned across the messenger and cable which were uncovered, to help Narazonick. As he attempted to pull up on the bracket, his left arm, above the glove, touched a primary circuit. He was heard to say, "It got me."

Narazonick immediately knocked Doyle's feet off the cross arm, and he slumped back in his belt in a jack-knife position. Because of the crowded condition of the pole, Narazonick was unable to get Doyle on his strap. However, he straightened Doyle up, pushed him back against the pole and began pressure on his abdomen.

He worked about three to five minutes before Doyle regained consciousness. In the meantime, the foreman had come up the pole with a bull line, and proceeded to assist Doyle to the ground, where he received medical attention.

At the time of the presentation of the Edison Medal and Certificate, Stanley P. Narazonick was in the Lakewood Hospital following an operation. The award was presented to him at the hospital.

ERNEST L. BOONE

Maryland

On October 11, 1944, Ernest L. Boone, a meter installation man of the Consolidated Gas, Electric Light and Power Company of Baltimore, was installing meters, switches and loops in a row of houses near Cherry Hill, Baltimore. A meter lineman, Harry Rodenberg, was assisting Boone with the work.

Shortly after 10:30 a.m., Boone was in the basement of a house, installing a meter switch, when he saw Rodenberg climb down the ladder he was on and run towards the street, shouting "Get out from under the wires!" Boone followed and, upon reaching the street, saw a man lying on the ground near a crane, surrounded by a group of men who were making no attempt to help him.

The crane was being used to unload sections of sewer pipe from a truck, and in so doing, had contacted a phase of the 33,000-v line which runs along the street. Neblo Delaurentis, an employee of the contracting firm which was operating the crane, had his right forearm resting on the pipe section being raised. According to witnesses, the ground around Delaurentis was in flames, and the fire seemed to center around his face.

When Boone reached the scene, the crane was not in contact with the wire. Asking what the trouble was, Boone was told that Delaurentis had received an electric shock and was dead.

Boone looked in Delaurentis' mouth, saw that it was clear, and then turned him over and began artificial respiration by the prone pressure method. The body was rigid, but began to loosen up after Boone had worked for five or ten minutes. Delaurentis showed no sign of life, however, for another five minutes, when he raised his head and attempted to get up. Throughout the application of pressure, Rodenberg assisted in every way possible.

Boone worked on Delaurentis for about ten minutes after his attempt to get up, until an ambulance arrived. He was then taken to Mercy Hospital.

Boone estimated that only about two minutes had elapsed from the time he heard Rodenberg shout to the beginning of artificial respiration. The prompt and efficient manner in which Delaurentis was cared for was a tribute to the first-aid training of both Boone and Rodenberg.

Presentation of the Edison Medal and accompanying Certificate was made by Ralph L. Thomas, Vice-President of the Company, on Feb. 27, 1945, before the assembled Meter and Installation Department. Henry Rodenberg received the Certificate of Assistance, and both men were commended and given additional awards by their Company.

Left to right: VAN B. ROBERTSON, E. C. BURTON who received Edison Medals, and L. W. Rives, Certificate of Assistance, at the presentation made by George A. Davis, President of the Oklahoma Gas and Electric Company

ELROY C. BURTON AND VAN BUREN ROBERTSON

Oklahoma

A line crew of the Oklahoma Gas & Electric Company was removing a static wire from a 24-kv line near Geary, Okla., on the afternoon of December 10, 1944. One outside phase wire was killed and the line was operated "Open wye," with the neutral grounded, and a wooden trough barrier covering the middle phase.

Lineman L. R. Huffman had just climbed a pole to his working position for removal of the static wire, placed his safety around the pole above the crossarm braces and was waiting for V. B. Robertson to come up with the handline. Robertson had just started up the pole, when he heard an arc. Looking up, he saw Huffman hanging in his belt.

Both Robertson and Lineman E. C. Burton started to Huffman's aid as fast as they could climb. Working together, they got Huffman to a position astraddle Robertson's safety strap. Burton immediately began resuscitation by the pole top method, while Robertson removed Huffman's climbers. Huffman was so heavy that the utmost effort was required from each man.

After about one and a half minutes, Huffman showed signs of life. Resuscitation was continued for another two or three minutes, until he was breathing unaided, and a handline had been rigged up to lower the victim to the ground by L. W. Rives. As he was lowered, Huffman became violent, kicking around with his legs and at one time wrapping his legs around the pole.

Upon reaching the ground, Huffman was wrapped up in coats supplied by the other members of the crew. A doctor arrived from Geary about thirty minutes after the accident and applied first aid, until the arrival of an ambulance.

At a meeting of 800 company employees on January 11, 1946, the Edison Medals were presented to E. C. Burton and V. B. Robertson by George A. Davis, President of the Oklahoma Gas and Electric Company. At the same ceremony L. W. Rives received the Edison Certificate of Assistance.

DANIEL CRAWFORD

New Jersey

On June 21, 1945, a line crew of the Jersey Central Power & Light Company was transferring construction from a 25-ft pole to a 40-ft black jack pole in Shrewsbury Township, N. J. The top arm of the pole carried a three-phase, 4800-v circuit, and the lower arm, a single-phase 4800-v circuit.

Linemen John Stadleman and Daniel Crawford were working on opposite sides of the pole. All wires were covered with line hose and untied. The line hose was interlocked, the top arm moved, wires tied in and the arm was lagged fast. Crawford then descended the pole to remove the old guy wire, with Stadleman remaining to lag the lower crossarm and remove the rubber goods.

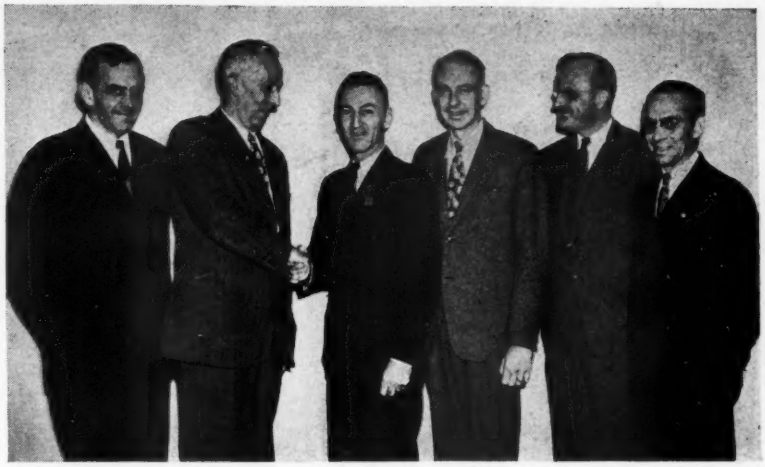
Stadleman later stated that when he dropped down to the lower cross-arm, he was still wearing rubber gloves. He changed to leather gloves to drive the lag screw into the braces of the lower arm, and then, for some reason, reached out to remove the last line hose.

Foreman Frank Misch was standing at the side of the truck, when he saw Stadleman slump in his belt. He shouted to Crawford, who immediately climbed to assist the victim. Before Crawford reached the top of the pole, Stadleman's slump had broken contact.

Crawford began resuscitation by the pole top method, as soon as he reached Stadleman. It was continued for about three minutes, before Stadleman showed signs of life. By this time, Misch had climbed the pole, and Crawford and Misch lowered the victim to the ground with a bull line.

He was taken to Riverview Hospital in Red Bank, N. J., suffering from severe burns of the hands and soles of both feet. A lineman of forty years' experience, this was Stadleman's first electrical shock.

Prior to the presentation of the Edison Medal, Daniel Crawford had left the employ of the Jersey Central Power and Light Company to go to California. The certificate and Medal were sent to him by mail.



RAYMOND F. SULLIVAN, Edison Medal winner, receives the congratulations of Vice-President R. L. Thomas of the Consolidated Gas, Electric Light and Power Co. of Baltimore. Left to right: A. L. Penniman, Jr., General Superintendent, Mr. Thomas, Mr. Sullivan, F. H. Rogers, Supt., Meter and Installation Dept., T. M. Bartholomee, General Foreman, and W. E. Lippincott.

RAYMOND F. SULLIVAN

Maryland

On December 28, 1939, several employees of an electrical contracting firm were changing the wiring and equipment of the Court Square Building, Baltimore, from d-c to a-c. Raymond F. Sullivan, of the Electric Meter and Installation Department, Consolidated Gas, Electric Light and Power Company, was in the building, as a representative of the power company during the changeover.

The contractor's crew was connecting a feeder supplying current from the distribution panel in the engine room to several floors of the building. The panel to which the connections were being made was alive with a-c current, 120-208 v, 3 phase, 4 wire, due to some other floors of the building having previously been changed over to a-c, and connected to this same panel.

Stanley Hatton, a wiring mechanic, was making the final tightening of the locknuts on the panel studs on the bottom tier of the panel, when Mr. Sullivan saw Jack Tate, wireman's helper, pull all switches on the panel. Looking behind the panel, Sullivan saw Hatton's forehead in contact with the fusing clips of the panel, and blood coming from a cut in his head.

Hatton was removed clear of the panel and found to be unconscious. Sullivan immediately moved him into position and began artificial respiration by the prone pressure method. After about four minutes' work, Hatton began to breathe and groan. An ambulance took him to Mercy Hospital for observation, and he was released the following day. The exact cause of the shock was undetermined.

The contractor's crew gave Mr. Sullivan full credit for his successful application of artificial respiration which undoubtedly saved Hatton's life.

Through an oversight in recording the accident, five years elapsed before full recognition was given R. F. Sullivan's heroic action by the presentation of the Edison Medal. On November 15, 1945, however, R. L. Thomas, Vice-President of the Company, presented Mr. Sullivan with the Medal and Certificate, remarking that it was a case of "delayed action."

J. L. ARRINGTON

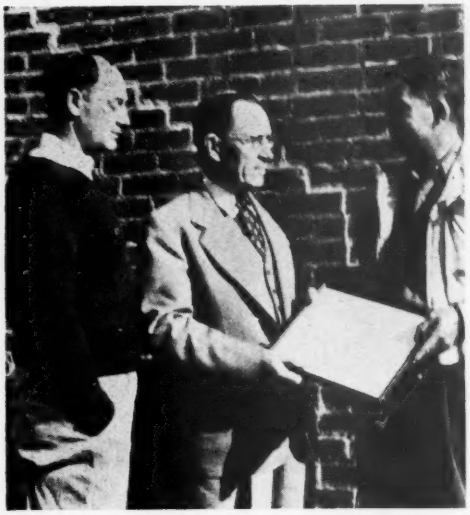
Georgia

On July 9, 1945, a line crew of the Georgia Power Company was setting new poles and transferring conductors on Lawyers Lane, in the city of Columbus, Ga. A new 40-ft pole had just been set and tamped up, when it was found that the limbs of a large pine tree some 15 ft back on the sidewalk had to be trimmed for proper clearance of the conductors.

Lineman Raymond Prickett climbed the pole to trim the small limbs, while Foreman W. L. Sewell climbed a ladder placed against the tree for additional trimming. After Prickett had trimmed the limbs within his reach, he passed his saw to Sewell, and then started to climb to the top of the pole without unfastening his safety belt. Although no witnesses could recall what Prickett did after starting up the pole, it is evident that he leaned back in his belt and contacted a bare 4-kv primary conductor.

When Sewell heard a groan, he turned and saw Prickett hung up on the primary, his body in a rigid position at an angle of about 45 deg from the pole, with both arms hanging down. The weight of his body was supported by the conductor. Smoke was coming from his climbers and from the pole, where contact was made with a telephone company cable resting against the pole.

Sewell immediately called to Lineman Jack Arrington, who was across the street at the line truck to "get him off." Arrington ran toward the pole, drawing on his belt and rubber gloves, as his climbers were on at the time. Hopping the pole to avoid the smoking cable, Arrington climbed to a position just below Prickett's knees, fastened his belt and broke the contact, keeping a firm grip on Prickett's knees.



JOHN L. THOMAS, holding the Edison Medal and Certificate after a presentation made by Operating Vice-President E. W. Robinson of the Alabama Power Company.

HOMER A. VAUGHAN receiving the Edison Medal and Certificate from R. S. Nelson (left), President of the Gulf States Utilities Company. Left to right as the presentation was made were: Messrs. Nelson, Stracener, Ickles, Vaughan, Hamilton, and Morrison.

Prickett's body at once turned a half circle, with the head hanging down. Lineman J. R. Harbuck of the Southern Bell Telephone and Telegraph Company climbed the pole, pulled Prickett to an upright position and handed him to Arrington, who placed him in a sitting position across his safety belt, and began artificial respiration by the pole-top method.

Prickett was apparently dead when respiration was first begun. He was not breathing, and froth was coming from his mouth. After about ten minutes, however, he began to breathe lightly, and gradually improved. About twenty minutes later, he began violent struggles, which required three men to control. Artificial respiration was continued atop the pole for one hour, and Prickett was then walked down the pole and removed to a hospital.

Arrington was aided in the application of artificial respiration by Sewell, and Lineman Albert Prickett, a brother of the victim. A company report on the accident said that "seldom has any man, in any critical emergency, displayed better judgment than did Jack Arrington in saving the life of his fellow workman."

The Edison Medal for J. L. Arrington, with Certificates of Assistance for W. L. Sewell and Albert Prickett, Georgia Power Company employes, and J. R. Harbuck, employe of Southern Bell Telephone and Telegraph Company, were presented by W. E. Mitchell, President of Georgia Power, at a special dinner meeting attended by over 200 Columbus Division employes in Columbus on March 22, 1946.

JOHN L. THOMAS
Alabama

On July 19, 1945, a line crew of the Alabama Power Company was preparing a transformer pole near Morris, Ala., for a cutover from 2.4 kv to 7.2 kv. Foreman J. C. McCrary was in charge of the work.

Lineman J. T. Whitten was standing on the transformer hanger arm, preparing to attach the conductor to the 7.2-kv strain insulator. While uncoiling the end of the wire, his arm contacted the live 2.4-kv conductor. Whitten cried out, then fell back in his belt unconscious and the coil of wire slipped up under his arm.

Lineman John L. Thomas was working on transformer cutouts on the same pole. Hurriedly putting on his rubber gloves, Thomas climbed up to Whitten, took the wire from under his arm and saw that he was not in contact with any other charged wires. In the meantime, McCrary secured his climbing tools and ¾-in. rope from the truck.

Whitten at this time was hanging back in his safety belt, in a lifeless condition. Thomas placed the victim astraddle a crossarm, moved to a position behind him and immediately began artificial respiration by the pole-top method. After about thirty strokes, Whitten began to breathe normally.

As soon as Whitten showed signs of breathing, Thomas stopped pumping and caught hold of his arms to keep him from contact with any other hot wire. When McCrary reached the crossarm, the rope was tied to Whitten's D-rings and he was lowered to the ground, after assuring them that he could breathe without help.

On the ground, Whitten was treated for shock and a burn on his right knee dressed. Hospital care was not necessary.

Before a meeting of Montevallo District employes (Ala.) on December 10, 1945, John L. Thomas was presented the Edison Medal for a successful resuscitation. The presentation was made by E. W. Robinson, Operating Vice-President of the Company. Several newspapers carried the story, uncovering an account of the presentation in 1937 to John T. Whitten of the President's Medal of the National Safety Council for the successful resuscitation of a drowned person.

HOMER A. VAUGHAN & GENE D. WILLIAMS
Texas

On March 19, 1945, Homer A. Vaughan, lineman, and Gene D. Williams, helper, of the Gulf States Utilities Company, were sent to the camp of the Humble Oil & Refining Co. near Lovell's Lake, where a house moving job was in progress. It was necessary for the house to pass under the electric lines at two locations, and Vaughan was told to take all precautions to clear the house under the lines.

When Vaughan saw that the house would not clear a hot 2300-v line, he climbed the pole, put on seven or eight lengths of rubber line hose which were sufficient to cover the entire width of the house, and then put a hand line on the hot wire, behind the hose, so that he could slide them. Long sticks were used to lift the wires over the top of the house.

The house cleared the neutral wire, a guy wire and a telephone wire safely. Vaughan then decided to slip the line hose forward so that they would protect the house from the hot wire. He found however, that the hose was against the side of the house, and it was impossible to slide it. As he moved to get a ladder from the truck, he felt the house move forward about a foot.

He then noticed two negro employees of the house moving contractor slumped down between the bumper and right front fender of the truck. Vaughan, who was wearing rubber gloves, immediately pulled both negroes clear. Vaughan and Williams at once began artificial respiration by the prone pressure method, assisted by D. E. Clampitt, of the Humble Company.

One of the negroes began normal breathing after only two or three minutes, but the other required at least twenty minutes work before showing signs of life. Both victims were placed in an ambulance and required hospital care.

An investigation of the accident showed that the last movement of the house caused the hot wire to slip over the top of the house to a cast iron vent pipe. This vent pipe connected with the plumbing fixtures beneath the house, a part of which rested on the eye-beam stringers on which the house was supported, and thus made a complete circuit through the eye-beams to the winch line to the truck.

In a dual ceremony to honor two other members of the Company (C. W. Stracener and J. H. Sturdivant) with the Edison Medal for a similar case of successful resuscitation, Homer A. Vaughan and Gene D. Williams received Medals and Certificates at a dinner meeting held by their Company on November 20, 1946. The presentation was made by R. S. Nelson, President of the Company, who also gave certificates of valuable assistance to D. E. Clampitt and James Stephenson, employees of the Humble Oil and Refining Company.

EDWARD R. GRAY

New Jersey

On January 9, 1946, William F. Lehman, then 72 years old, was cutting limbs from a tree near the home of Marlin O. Roberts, in Bordentown, N. J. W. S. Hankins was assisting Mr. Lehman in the job.

About 4:30 p. m., a limb broke off the tree, falling across and breaking down electric lines extending along the street. In spite of the nearby wires, Mr. Lehman and his helper continued to clean up the brush.

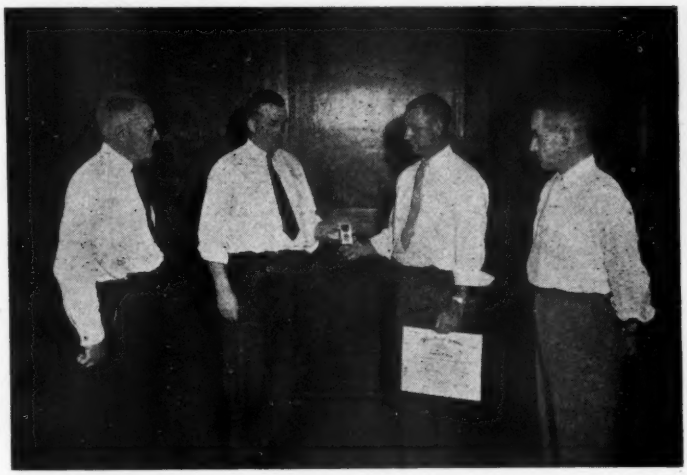
A few minutes later, Mr. Roberts saw Mr. Lehman grasp one of the wires. After trying unsuccessfully to free Mr. Lehman by pulling on his clothing, Mr. Hankins knocked the wire from his hand with an axe handle. The victim then fell to the ground unconscious.

Mr. Roberts, who had rushed from his home at sight of the accident, attempted to pick Mr. Lehman up, when he saw a truck of the Public Service Electric & Gas Company pull up in the street. He shouted to the driver that a man had been electrocuted.

Edward R. Gray, a troubleman of the electric company, rushed to the scene and assisted in carrying the victim to the Roberts' home. He then applied artificial respiration by the prone pressure method for about five minutes, at the end of which Mr. Lehman revived. Gray then treated him for shock, and his burns were dressed by a doctor.

In a statement, Mr. Roberts said that he had been recovering from pneumonia, and did not have the strength to revive Mr. Lehman. No other person present knew how to apply artificial respiration, he stated, and in his opinion the victim owed his life to the prompt work of the Public Service man.

E. R. Gray received the Edison Medal and Certificate at a presentation ceremony on July 10, 1946 attended by 160 members of the Trenton Electric Distribution Department of the Public Service Electric and Gas Company. The presentation was made by Division Superintendent Percy B. Bass. W. R. Smith, Safety Engineer of the Company, extended congratulations on behalf of the Committee of Judges for the Award of the Edison Electric Institute Medal, of which he is also a member.



EDWARD R. GRAY, accepting the Edison Medal from Percy B. Bass, Division Superintendent of the Public Service Electric and Gas Company. Left to right: W. R. Smith, Safety Engineer, Mr. Bass, Mr. Gray, and Charles W. Evans, Division Safety Supervisor.

GREY MARSH

West Virginia

On October 25, 1945, John J. Snyder, an electrician apprentice of the Monongahela Power Company, was working in the North View substation at Clarksburg, W. Va. A veteran of World War II, he had been engaged in this type of work for about six weeks.

While painting a 22-kv oil circuit breaker in the substation yard, Snyder climbed on the operating mechanism housing and reached up, grasping an energized conductor at the top of the bushing. He suffered severe burns and was knocked clear of the mechanism, falling on his back in an unconscious condition.

Artificial respiration was begun about 30 seconds after the shock by Grey Marsh, a dispatching operator. About three minutes later, the victim showed signs of life, and normal breathing began after twelve minutes of respiration applied by Marsh.

Snyder was then moved to St. Mary's Hospital in Clarksburg. The severe burns in his right arm, chest, both lower arms and hand, both thighs and both feet proved fatal, and he died on October 29th.

Statements by witnesses testified to the cool and efficient manner in which Marsh applied artificial respiration, and his success in restoring Snyder's breathing. It is their opinion that Snyder would have died at the scene of the accident, had not Marsh's prompt treatment been available.

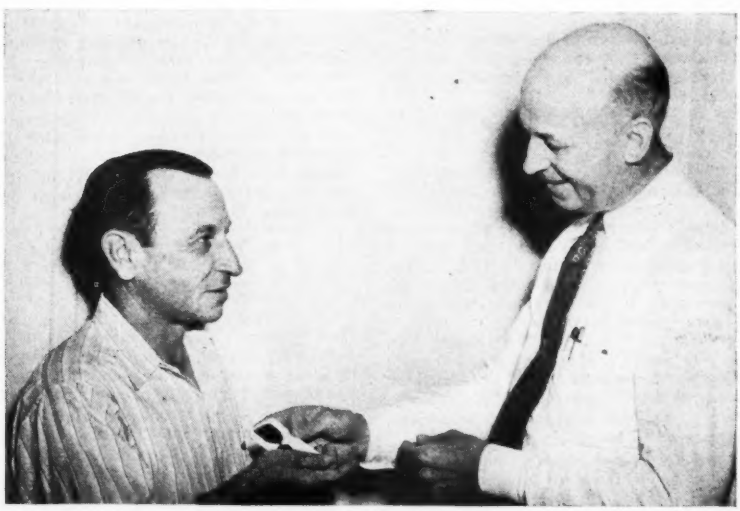
The Edison Medal and Certificate which were awarded to Grey Marsh, an employee of the Monongahela Power Company, Fairmont, W. Va., were presented to him on June 14, 1946 by A. C. Spurr, President of the Company.

W. H. DEASON

Oklahoma

On October 27, 1945, Jim Renfroe was in charge of a house moving job in Mountainburg, Arkansas. As the house neared an electric power line, Renfroe climbed to the top of the house, attempting to raise the wires to allow the house to pass under.

GREY MARSH receives the Edison Medal from A. C. Spurr, President of the Monongahela Power Company.



At left, W. H. DEASON, shown receiving the Edison Medal from Morgan Wright, Arkansas Division Manager of the Oklahoma Gas and Electric Company.

Left to right: J. T. Christy, J. P. Snyder, ANTHONY J. GOODLICK, Executive Vice-President Henry B. Bryans, S. R. Chase and R. P. Lawton. Mr. Goodlick received the Edison Medal, and the others, Certificates of Assistance from Mr. Bryans.

C. W. STRACENER presented the Edison Medal and Certificate by R. S. Nelson, (left) President of the Gulf States Utilities. Standing left to right beside Mr. Nelson are: Homer A. Vaughan, J. E. Ickles, Mr. Stracener, M. L. Hamilton and J. C. Morrison.

In so doing, the wire, a single-phase, 14,000-v circuit, contacted Renfroe's head. The shock threw Renfroe clear of the wire, and in an unconscious condition, he fell from the top of the house to the ground.

At the time of the accident, W. H. Deason, a lineman of the Oklahoma Gas & Electric Company, was working on a building about two blocks away. S. L. Kuykendall's attention was attracted by the shouts of those who had seen the accident, and he summoned Deason to the scene.

When Deason arrived, Renfroe was on the ground, not breathing and apparently dead. Deason rolled the victim over on his stomach, placed one arm under his head and began giving him artificial respiration by the prone pressure method. After about twenty minutes work, Renfroe began to breathe with difficulty, and it was not until another twenty minutes that his breathing became normal.

Renfroe was then taken to a hospital, suffering from burns and abrasions on various parts of the body. Despite the effects of the electric shock and his fall, Deason's work had been so prompt and efficiently administered that Renfroe was able to leave the hospital on the following day.

On June 16, 1946, W. H. Deason was presented the Edison Medal by Division Manager Morgan Wright at a meeting of the local Oklahoma Gas and Electric Company's men's club attended by approximately 78 members.

ANTHONY J. GOODLICK

Pennsylvania

James J. Bottomley, Jr., was testing 2400-v distribution transformers in the transformer test room of the Service Building, Philadelphia Electric Company, on February 5, 1946. He had been doing this type of work for about three months. Stacy R. Chase, a special tester of thirteen years' experience, was in charge of the work, and was about 10 ft away from Bottomley.

Shortly after 3 p. m., Chase heard Bottomley cry out. Turning, he saw Bottomley fall backward, the back of his head striking the concrete floor. When Chase reached him, Bottomley was lying on his back unconscious, and appeared to be choking.

When Chase could not open his mouth, he called for help. Anthony Goodlick, repairman, and James T. Christy, foreman of the Customer Installation Division, both ran into the test room. When they arrived, Bottomley's face was blue and he was not breathing.

Goodlick immediately began artificial respiration by the prone pressure method, while Christy opened his mouth, released the victim's tongue and opened the shirt collar. Christy then took off Bottomley's shoes and stockings and began to rub his feet and legs.

After about ten minutes' work, Bottomley began to groan and twist about. He then opened his eyes and recognized the men working. As his breathing improved, the men kept talking to him and encouraging him.

A company truck then took Bottomley to Jefferson Hospital, where his scalp lacerations and burns of both hands were treated. His time lost amounted to five days.

The cause of the accident is unknown, since Stacy's work necessitated his turning his back toward Bottomley. His check of the equipment immediately after Bottomley was removed showed that the transformer test set was off, the control switch on the control panel was open and no equipment was hot.

In the office of H. B. Bryans, Executive Vice-President of the Philadelphia Electric Company, on October 23, 1946, awards were presented to five employees of the Company by Mr. Bryans in the presence of 30 Company executives and department heads. Anthony J. Goodlick received the EEI Medal, and Certificates of Assistance were awarded to each of the following employees of the Company for the same action; James T. Christy, Stacy R. Chase, Robert P. Lawton and Joseph P. Snyder. Considerable attention was given to the occasion by the local press.

C. W. STRACENER and J. H. STURDIVANT

Texas

On February 26, 1946, a line crew of the Gulf States Utilities Company was building a primary extension and transformer bank to serve a planing mill some miles east of Beaumont, Texas. The crew consisted of Foreman J. C. Morrison; 1st Class Lineman Ernest E. Young; 4th Class Linemen C. W. Stracener and J. H. Sturdivant; helpers M. L. Hamilton, G. W. Boswell, J. A. Elkins, D. E. Smith, and the driver, J. E. Ickles.

Young, up on a new 55-ft pole, had completed all the jumpers and had made the primary hot. He then changed positions to the lower buck and line arm, where he performed the same operation and made the secondary hot. The foreman then instructed him to tie-in a two-wire service to a nearby house.

Instead of tying the service to the lowest single arm, Young went up the pole, over the lower double arm and the single arm above it. He then stood on the low double arm and safetied himself off. In some manner, his head hit the deadend shoe or clamp of the 13-kv line to the planing mill.

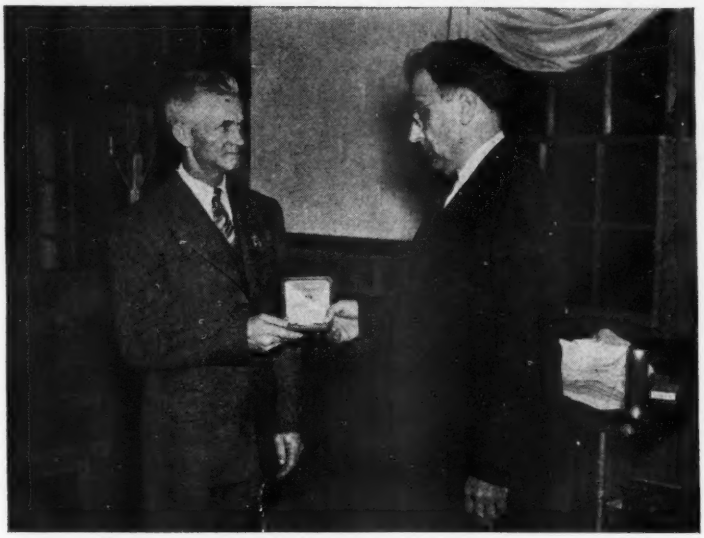
A terrific flash enveloped Young's head. He slumped in his belt and fell backward, his belt slipping down the pole to the lower single line arm, and his body resting on the lower buck arm. The foreman shouted to Stracener and Sturdivant to "go and get him."

Stracener started up the pole with a heavy handline. While Sturdivant straightened Young up, Stracener fastened the line into his belt and looped it under his arms. Together they manuevered Young to a position with his legs astride Stracener's belt, so that Sturdivant could begin to let them down.

Stracener immediately began respiration by the pole-top method, and continued as he and Young came down the pole. Sturdivant slipped his own and Stracener's belts down the pole. Upon reaching the ground, resuscitation by the prone pressure method was immediately begun by Stracener, with the prompt assistance of the rest of the crew.

Young began to breathe soon after, but with great difficulty. He was then taken to a hospital, suffering from severe burns and a brain injury, which proved fatal. He died on March 1, 1946.

At a dinner meeting on November 20, 1946 attended by 160 employees of the Gulf States Utilities Company, R. S. Nelson, President of the Company, addressed the assembly to make presentation of the Edison Medal and Certificate to J. H. Sturdivant and C. W. Stracener. Presentations were also made with certificates of valuable assistance to the other members of the crew, J. C. Morrison, J. E. Ickles, Jr., D. E. Smith, J. A. Elkins, M. L. Hamilton and G. W. Boswell. The occasion included a second presentation of the Medal made to employees Homer A. Vaughan and Gene D. Williams, whose award was based on another successful resuscitation of two men not employed by the Company.



CLARENCE BLACK, left, wearing the Edison Medal, is presented with a gold watch from the Missouri Public Service Corporation by Vice-President Chas. Czeschin.

President A. W. Higgins pinning the Edison Medal upon GLENN SELLERS at a presentation ceremony held by the Florida Power Corporation on Jan. 11, 1947.

CLARENCE BLACK
Missouri

On May 9, 1946, a line crew of the Missouri Public Service Corporation was at work on a 4160-v distribution system near Windsor, Mo. Lineman Arthur H. Wenig had climbed a pole, and was making preparations to begin work.

While thus engaged, he came in contact with a steel crossarm brace which had become energized, due to its being in contact with a guy wire which was touching an energized jumper. The shock threw Wenig clear of the circuit, and he fell to the ground.

Lineman Clarence Black rushed to his aid, and found Wenig to be unconscious, with his face turning blue. Resuscitation was carried on for about 15 minutes, before the victim showed signs of life. It was necessary for Black to continue the pressure for another 25 minutes, before Wenig could breathe without assistance.

An ambulance had been summoned by other members of the line crew, and Wenig was taken to Bothwell Memorial Hospital, in Sedalia, Mo. He died in the hospital on May 11, from a fractured pelvis and vertebrae which had been caused by his fall.

A safety meeting and dinner was held on Nov. 22, 1946, at which Clarence Black received the Edison Medal from Raymond Rollins, Safety Manager of the Missouri Public Service Corp. Employes of the company and their families attended the dinner and meeting to witness the presentation to which was added a gold watch from the company.

GLENN S. SELLERS
Florida

On August 27, 1946, a line crew of the Florida Power Corporation under Foreman Glenn S. Sellers, was pulling the slack out of a 2-wire secondary line, which was the only line on the poles. Lineman Fred Thomson had climbed a pole, killed the line by disconnecting the jumpers and was waiting for other members of the crew to clear the conductors so that he could pull them up to sag.

Thomson, who was standing in his hooks on the pole, did not have hold of any equipment and was absolutely in the clear. The day was cloudy, but there had been no rain and the flash of lightning that struck near the crew was completely unexpected.

The lightning staggered most of the crew, and knocked Sellers to his knees. As he turned his head to see if any of his men had been hurt, he saw Thomson slump in his belt. A piece of insulator was knocked from the secondary rack near which Thomson was working.

Sellers and Quinn Forehand, Thomson's helper, ran toward the pole. As they approached, Thomson's belt started to slip. By this time, Thompson was hanging head downward, and he came down the pole in this position, with his belt catching the pole every two or three feet, and thus slowing his descent.

Thomson landed on his shoulder and neck. When the men reached him, he was unconscious and turning black. Forehand turned him over, and then, on Sellers' order, left to call an ambulance. Sellers began artificial respiration by the prone pressure method, and after about one minute, saw Thomson move. Respiration continued for another few minutes, until Thomson asked to be allowed to breathe unaided. He was taken to a hospital shortly afterward.

Dewey Swafford and Henry E. Miller, other members of Sellers' line crew, gave efficient assistance to the foreman while he was applying the resuscitation.

Thomson said later that he had been conscious at intervals. He remembered falling down the pole, with his feet over his head, but could not recall either seeing the lightning or receiving the shock.

Glenn S. Sellers received the Edison Medal and Certificate from A. W. Higgins, President of the Company, who commended him before the annual Clearwater Safety dinner meeting attended by his fellow workers on January 11, 1947. Other members of the line crew—Quinn Forehand, Henry Miller and Dewey Swafford—received Certificates of Assistance at the same dinner meeting.

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Atlantic City, New Jersey

June 2-5, 1947

PERSONALS

PRESTON S. ARKWRIGHT, JR., son of the long-time head of the Georgia Power Co., has been elected president of the company to succeed WILLIAM E. MITCHELL, who has retired after serving 20 years as general manager and two years as president.

P. S. ARKWRIGHT, JR.

A native of Atlanta and a lifelong resident of the state, Mr. Arkwright has been a member of the company's legal staff since 1926 and a director since 1939. His father was president from 1902 to 1945, and afterward chairman of the board until his death last December.

The position of chairman of the board is now vacant following the resignation of E. A. YATES, who recently filled the chairmanship on a temporary basis. Mr. Yates is vice-president of Commonwealth & Southern Corp.

In accepting the presidency, Mr. Arkwright said: "As a native Georgian, whose family for generations has been identified with the life of this state, my major interest is in furthering the progress of Georgia, for in that way I believe I can best serve the interests of the company which has honored me by electing me its president. . . " He stated that the company will move ahead with its expansion and improvement program and will speed construction of the new Albany generating station and the additions to the Arkwright and Atkinson plants. No changes in policy or personnel are contemplated, he added.

Mr. Mitchell served as president of the company from May 15, 1945, when

W. E. MITCHELL

he was promoted from vice-president and general manager. He succeeded P. S. Arkwright who was elected chairman of the board. He has been associated with the development of the electric industry in the southeast for more than 40 years.

Before coming to Atlanta in 1927, Mr. Mitchell was connected with the Alabama Power Company over a 15-year period, first as an electrical engineer and operating manager and later as assistant to the general manager, a director and vice-president. He joined the Georgia Power Company as vice-president and general manager.

FRANK M. TAIT, chairman of the board of the Dayton Power and Light Co. and vice-chairman of the Thomas A. Edison Centennial Committee, has been elected President of the Edison Pioneers. A widely known public utility and industrial executive and engineer, Mr. Tait has had a leading part in the development and financing of many properties.

Mr. Tait was associated early in his career with the Catasauqua Electric Light and Power Company, the Somerset Lighting Company in New Jersey and the New London (Conn.) Gas and Electric Company. He joined the Dayton Electric Light Company, predecessor of the Dayton Power and Light Company, in 1905 as manager and director, and was for many years president and general manager, before becoming chairman of the board last year.

For a time he was engaged with the late Thomas A. Edison in important research work. He served as president of the old National Electric Light Association and also of the Ohio Electric Light Association. He is a member of the Newcomen Society of England, the American Gas Association and a fellow of the American Institute of Electrical Engineers.

FRANK M. TAIT

Stockholders of the Kansas City Power and Light Company have increased the board from seven to nine members to include HARRY H. KUHN, the company's ranking vice-president and JOHN DERN, a Chicago attorney associated with the parent United Light and Railways Company. Mr. Dern will represent William G. Woolfolk, the United chairman, who is unable to attend all Kansas City board sessions.

HARRY B. MUNSELL, new president of the Kansas City Power and Light Company, has announced the appointment of ROBERT A. OLSON of Chicago as secretary of the company and FRED J. GUNTHER of Red Oak, Iowa, as manager of operations. Mr. Gunther will succeed G. O. BROWN whose resignation becomes effective May 1. He will be in charge of construction projects for the transmission and distribution of power. Mr. Olson formerly assisted Mr. Munsell in Chicago and will handle all secretarial duties performed by Munsell prior to his election as president.

Mr. Olson has been employed in Chicago by The United Light and Railways Service Company since 1935 and was originally assigned to the law department. In 1942 he was appointed to assist Mr. Munsell, who was then a vice-president of the United System. Since August, 1945, Olson has served as a

member of the finance committee of The United Light and Railways Service Company and took an active part in the Kansas City Power & Light Company's recent refinancing program. He is a graduate of the University of Iowa with degrees from the College of Commerce and the College of Law.

Mr. Gunther has been superintendent of the Southwestern Division of the Iowa Power & Light Company, with offices in Red Oak. He is a graduate of the University of Nebraska with a B. S. degree in electrical engineering and well known to utility officials as the 1938 chairman of the engineering section of the Missouri Valley Electric Association and the 1939 president of the Midwest Gas Association.

Mr. Gunther first joined the staff of the York Gas & Electric Company in the fields of engineering and design. The York company finally became a part of the Iowa-Nebraska Light & Power Company through successive purchases and mergers. When the Nebraska electric properties were sold to public power authorities, Gunther was assistant general manager of the Iowa-Nebraska Company in charge of production, transmission and distribution of both gas and electricity.

Mr. Brown, retiring manager of distribution, started work as a meter tester and installer in 1912, and his experiences have ranged from pioneering the first automatic substations in the United States to acting as coordinator-expediter for the planning and engineering of the present Kansas City office building.

In 1915, Mr. Brown was made foreman of the company laboratory and in May, 1917, commissioned a first lieutenant in the Field Signal Battalion of the Missouri National Guard, going to France with the 42nd Division and serving two years overseas.

Returning to the Kansas City Power & Light Company in August, 1919, Mr. Brown soon become superintendent of the substation department. Under his supervision the automatic substations of the company were developed and constructed. When plans for the present Kansas City office building at 1130 Baltimore St. were in the making, Mr. Brown was selected to act as co-ordination expediter between department heads and architects.

In 1933, Mr. Brown was appointed assistant to A. E. Bettis, then one of the Kansas City vice-presidents, and played an active part in engineering and executing increased distribution capacity to serve the expanding Greater Kansas City area. In 1943, Mr. Brown was appointed to his present position in charge of all distribution.

H. L. MITCHELL

H. L. MITCHELL, president, West Penn Power and Railways Companies, on March 4 reached the 45-year mark in his service. He is one of nine active West Penners to achieve this remarkable record.

Employed as clerk by the former Pittsburgh, McKeesport and Connellsville Railways Company at Pittsburgh, March 4, 1902, Mr. Mitchell played an important part in the development of the present West Penn Railways and Power Companies into one of the most modern, efficient transportation and power systems in the country.

During the formation of West Penn Railways, he was located at Connellsville, where he held various positions, among them chief clerk, paymaster and office manager. In July, 1911, he was transferred to Pittsburgh as assistant to W. E. Moore, then vice-president and general manager. He was later made assistant manager of the light and power departments, and from June 1 to Sept. 15, 1918, was assistant to Railways vice-president Williston Fish.

He was then elected vice-president and general manager of Wheeling Traction Company, and transferred to Wheeling, W. Va. The following 10 years saw his promotion to general manager of West Penn Railways; his election to the Railways vice-presidency in March, 1920, and his appointment as president of that company in April, 1927.

President of West Penn Power Company for 18 years, Mr. Mitchell's leadership and cooperative spirit have been an inspiration to all West Penn employees.

ANDREW L. MCCRACKEN has been appointed to operate the dealer coordination department recently organized by the Southern Indiana Gas & Electric Co., Evansville, Ind. Mr. McCracken has been connected with the utility company since last September, serving on the appliance sales staff. He was formerly field representative of General Electric.

Central Arizona Light and Power Co., Phoenix, Ariz., recently divided its expanded territory into four divisions, and announced the election of F. T. FAHLEN, JR., as vice-president in charge of division operations.

Formerly assistant vice-president, Mr. Fahlen has complete charge of operations in the Phoenix area, and also has supervision of the divisions which were formed to better serve the needs of the company's growing service area.

With the exception of two years spent in military service, Mr. Fahlen has been connected with the Arizona utility for 13 years. Advancing in the ranks to the position of lighting engineer, he was made manager of the Tempe district in 1936 and later became Phoenix district manager. Four years later he was appointed supervisor of all districts. It was in July, 1946, that the board of directors elected him to the position of assistant vice-president.

DAYTON E. HUSK has been appointed safety director of the New Jersey Power and Light Company, Dover, N. J. Mr. Husk started his utility career with the Metropolitan Edison Company in Easton, Pa., in 1921 and was made supervisor of safety and accident prevention for New Jersey Power and Light Company, and the eastern division of the Metropolitan Edison Company in 1929, continuing in that position until his new appointment. During the war years he was a special agent of the Department of Labor to promote industrial safety and health in Warren, Sussex and Hunterdon Counties.

E. A. OLSON has been appointed sales manager of the Idaho Power Co., Boise, succeeding R. S. OVERSTREET, who has been made division manager of the company's central division.

Mr. Olson has been with the com-

pany more than 18 years. He started in the central division of the company, becoming rural salesman, and later transferring to the general office on a special assignment. For several years, he was engaged as residential and farm sales manager. Three years ago, he was made assistant sales manager.

HENRY R. KRUSE, general sales manager of the Puget Sound Power & Light Company, Seattle, has been named general commercial manager. During his 24-year association with the utility he has worked in each of the company's six divisons in addition to assignments in the general offices.

Prior to his becoming general sales manager, Mr. Kruse was head of Puget Power's economic development and research department, division manager in Bellingham, sales manager in the company's northeastern and eastern divisions in Everett and Wenatchee and was assistant sales manager in Olympia and Bremerton.

When the Northwest Electric Light and Power Association holds its annual meeting in Seattle this spring, Mr. Kruse will head up the Business Development Section of the parley.

LINCOLN F. KIELSMEIER, industrial sales representative for the Springfield Division of Ohio Edison Company, has been promoted to the newly created position of general industrial sales representative for the company with headquarters in Akron, Walter H. Sammis, company president has announced.

In his new position, Mr. Kielsmeier will assist the utility's industrial sales representatives in the Akron and Youngstown Divisions as well as in the Springfield Division on matters relating to power, heating and other applications of electricity to industry.

Following his graduation from the University of Colorado in the electrical engineering course in 1925, he enrolled in the student test course of the General Electric Company at Schenectady, N. Y., and at the same time took a year of post graduate work at Union College in that city.

In the fall of 1926 he came to Springfield as an illuminating engineer for Ohio Edison Company. In 1929 he was awarded the degree of electrical engineer by his alma mater for additional work and a study made on rural electrification. On Sept. 1, 1930, he was put in charge of power sales work for Ohio Edison in Springfield, which position he has filled continuously since that time.

Mr. Kielsmeier is a member of the national committee of the industrial power and heating section of the Edison Electric Institute and a past president of the Springfield Engineers' Club and also of the Springfield district chapter of the Ohio Society of Professional Engineers.

CONVENTIONS AND MEETINGS

1947

APRIL

3-5 Southeastern Electric Exchange, Annual Conference, The Vinoy Park Hotel, St. Petersburg, Fla.
7-9 AGA-EEI National Accounting Conference, Hotel Statler, Buffalo, N. Y.
7-10 National Association of Corrosion Engineers, Annual Conference and Exhibit, Palmer House, Chicago, Ill.
9-10 Northwest Electric Light and Power Association, Engineering and Operation Section, Multnomah Hotel, Portland, Ore.
14 Transportation Committee, EEI, Hotel Cleveland, Cleveland, Ohio
14-15 AGA-EEI Public Utility Fleet Operators' Conference, Hotel Cleveland, Cleveland, Ohio
15-16 Indiana Electric Association, Annual Young Men's Utility Conference, IPALCO Hall, Indianapolis, Ind.
16-18 Missouri Valley Electric Association, Engineering Conference, Hotel Continental, Kansas City, Mo.
17-18 Southeastern Electric Exchange, Accounting Section, The McFadden Deauville Hall, Miami, Fla.
23-24 Missouri Valley Electric Association, Sales and Rural Conference, Hotel Continental, Kansas City, Mo.
23-26 American Society of Civil Engineers, Spring Meeting, Phoenix, Ariz.
24-25 Pennsylvania Electric Association, Systems Operation Committee, Buffalo, N. Y.
28-29 Electrical Equipment Committee, EEI, Edgewater Beach Hotel, Chicago, Ill.
28-29 Transmission and Distribution Committee, EEI, Edgewater Beach Hotel, Chicago, Ill.
28-29 Hydraulic Power Committee, EEI, Edgewater Beach Hotel, Chicago, Ill.
28-May Chamber of Commerce of the U. S. A., Washington, D. C.
29-30 Accident Prevention Committee, EEI, Edgewater Beach Hotel, Chicago, Ill.

MAY

2-4 Westinghouse Agent-Jobbers Association, Hotel Claridge, Atlantic City, N. J.
4-8 National Electrical Wholesalers Association, Hotel Traymore, Atlantic City, N. J.
7-8 Northwest Electric Light and Power Association, Business Development Section, Olympic Hotel, Seattle, Wash.
12-13 Prime Movers Committee, EEI, Schroeder Hotel, Milwaukee, Wis.
13-14 Southeastern Electric Exchange, Home Service Conference, Thomas Jefferson Hotel, Birmingham, Ala.
15-16 Pennsylvania Electric Association, Electrical Equipment Committee, Irem Temple Country Club, Dallas, Pa.
20-21—Power Sales Conference, Joint with Pennsylvania Electric Association and Industrial Power and Heating Section, EEI, Hotel Hershey, Hershey, Pa.
22-23 Missouri Valley Electric Association, Blackhawk Hotel, Davenport, Iowa.
22-23 Pennsylvania Electric Association, Transmission and Distribution Committee, Irem Temple Country Club, Dallas, Pa.
26-28 Meter and Service Committee, EEI, Detroit Leland Hotel, Detroit, Mich.
26-29 National Fire Protection Association, Palmer House, Chicago, Ill.
27-29 National Association of Purchasing Agents, Chicago, Ill.

JUNE

2-5 EDISON ELECTRIC INSTITUTE, Annual Meeting, Atlantic City, N. J.
18-20 Canadian Electrical Association, 57th Annual Convention, Algonquin Hotel, St. Andrews, N. B.
22-26 National Electrical Manufacturers Association, The Homestead, Hot Springs, Va.
24-27 National District Heating Association, The Chalfonte-Haddon Hotel, Atlantic City, N. J.

JULY

16-18 American Society of Civil Engineers, Duluth, Minn.

SEPTEMBER

5-11 National Electrical Contractors Association, San Francisco, Cal.
10-15 Illuminating Engineering Society, Roosevelt Hotel, New Orleans, La.
17-19 Indiana Electric Association, French Lick Springs Hotel, French Lick, Indiana
25-26 Southeastern Electric Exchange, Fall Conference Engineering and Operation Section, Henry Grady Hotel, Atlanta, Ga.

OCTOBER

6-7 Prime Movers Committee, EEI, Benjamin Franklin Hotel, Philadelphia, Pa.
6-7 Electrical Equipment Committee, EEI, Benjamin Franklin Hotel, Philadelphia, Pa.
6-8 American Gas Association, Annual meeting, Cleveland, Ohio.
6-10 35th National Safety Congress and Exposition, Chicago, Ill.
9-10 Transmission and Distribution Committee, EEI, Benjamin Franklin Hotel, Philadelphia, Pa.
15-18 American Society of Civil Engineers, Fall Meeting, New Orleans, La.
29-31 Southeastern Electric Exchange, General Sales Conference, Atlanta Biltmore Hotel, Atlanta, Ga.

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